Commercialization Initiatives at Eastern Energy System

Volume 1 – Report

EXECUTIVE SUMMARY

Eastern Energy System is one of the 18 new State Owned corporations created as a result of the restructuring of the Energy Sector of Mongolia. The Government of Mongolia requested the U.S. Agency for International Development to provide assistance on many aspects of the restructuring. The goal of the Energy Sector Restructuring Project (ESRP) is to assist with the implementation of the new Law of Mongolia on Energy aimed at restructuring the sector in a more commercially based environment that would shed unnecessary fuel, equipment, and labor cost burdens, creating efficient energy facilities and operations that yield a consistent and profitable contractual, regulatory, and industrial framework. This framework will attract investment to support new supply facilities to meet energy demand at least cost while improving supply, reliability, and efficiency.

One of the tasks is to provide technical assistance to several of the new companies to help them make the transition from being part of the State controlled, vertically integrated energy system to managing an independent business on a commercial basis in the new industry environment. This report is the result of the commercialization work conducted at Eastern Energy System (herein also referred to as EES or the Company). The primary purpose of the report is to advise the Management and Governing Board (Board of Directors) on business management issues. It can also be utilized to inform interested stakeholders (The Government of Mongolia, International organizations, potential investors, etc) about the company and ways in which they can help it succeed in the new environment. Eastern Energy System is a unique company in the Energy Sector of Mongolia since it is the only bundled utility providing Generation, Transmission, Distribution, and Retail Supply of both Electricity and Heat. In addition, it operates as an "Electrical Island", having no interconnection with the other Energy Sector participants in Mongolia or the Russian Grid. This creates a different environment and a different set of challenges for EES, especially since this is one of the entities requiring a subsidy from the State Budget since the Government of Mongolia has decided that customers of EES cannot afford to pay the full cost of providing energy to them.

Change is never easy, especially in a company as large as this one. There are a significant number of risks and uncertainties involved, including the new industry structure, a new tariff system, access to funds for operations and capital improvements, and uncertainty in the receipt of subsidies that have traditionally been required for the Eastern Energy System. On the other hand, there are also rewards associated with operating an independent business. The management team and employees will increasingly have more control of their future and should experience less direct involvement from the Energy Authority and Ministry of Infrastructure. They can directly benefit from meaningful cost reductions they achieve and work to increase the value of the business (Shareholder Value) over time.

On 13 December 2002, a presentation of the draft of this report was made to EES management and other interested stakeholders. The presentation materials are contained in Appendix C-7. Advanced copies of the draft report were provided to the following along with an invitation to attend the presentation:

- The Company Management Team
- The Governing Board
- The Ministers involved with the Company (Infrastructure, Finance and Economy, State Property Committee)
- The Energy Regulatory Authority
- US Agency for International Development

Comments were received on the draft report from the Executive Director of EES and from Mr. Bailikhuu of the State Property Committee. The comments and responses are included in Appendix C-8 and C-9.

This report begins with an introduction and overview of the Company and the importance of Commercialization in the context of the current state of the Mongolian Energy Sector and the future direction it is expected to take (Chapter 1).

The importance of implementing business management principles at EES is emphasized in Chapter 2, beginning with the identification of the major business processes and continuing with a discussion of the importance of concentrating on those processes and the use of Key Performance Measures to quantify and measure progress. The major business processes are then reviewed in detail in later chapters

Chapter 3 contains a detailed analysis of the financial situation of the Company and a discussion of the importance of accounting and financial analysis in the changing environment. Sector issues, such as International loans are also explored.

Chapter 4 discusses a very fundamental requirement that must be met in order for EES to be considered a "Commercial" enterprise. Since the Government of Mongolia has determined that the customers of EES cannot afford to pay the full cost of providing electricity and heat to them, a subsidy from the State Budget is required. In order to prevent the gridlock situation that occurred in the summer and fall of 2002, a "Tariff and Subsidy Approval Process" is presented in order to rationalize and coordinate these two very important processes. Once EES has some assurance of its income stream (in the form of tariffs and subsidy) it can carry out its mission in a commercial environment. THIS IS A CRITICAL REQUIREMENT FOR THE GOVERNMENT, ITS MINISTRIES, AND THE ERA TO ADOPT AS A CONDITION PRECEDENT FOR THE COMMERCIALIZATION OF EES.

Chapters 5 through 10 provide a review of each primary business process as follows:

- Generation (Chapter 5)
- Transmission and Distribution of Electricity (Chapter 6)
- Heat Distribution (Chapter 7)
- Sales and Service (Chapter 8)
- Pricing (Chapter 9)
- Billing and Collection (Chapter 10)

Each chapter begins with an overview of the process, some history, and an evaluation of the current situation. Specific recommendations are made for each process to enable EES to move forward as an independent company on a commercial basis.

Management Information Systems and Information Technology provide the key tools the Company must utilize to effectively and efficiently carry out all its processes. Chapter 11 provides the status of the present systems, a review of the adequacy of those systems, an overview of the future directions for the technology, and recommendations for development.

The Administrative Processes (often referred to as Support Processes) are reviewed in Chapter 12 including Planning, Human Resources, Finance & Accounting, and Procurement.

In order to have all individual recommendations summarized and documented in one place, Chapter 13 is included to provide more information concerning the recommendations made. A table has been developed for each recommendation and includes:

- The Recommendation
- Background on the issues to give the reader a framework to understand the situation
- Preconditions that are necessary in order to carry out the recommendation
- A Summary Action Plan that includes the primary tasks, the person or group responsible for the task, and a proposed time frame. These are not detailed action plans, but rather a summary road map that the Company can use to develop the individual assignments in order to achieve progress on the recommendations.
- The Results Expected as a result of implementing the recommendation.

In addition, in Chapter 14 the recommendations have been prioritized in terms of importance and urgency. For the highest priority recommendations, suggested areas in which near-term technical assistance could benefit the Company or the Government of Mongolia have been identified.

The author is of the strong opinion the EES is "Doing the Right Things". Many examples are noted in this report showing that the Company has a strong Business Orientation, critical in the new commercial environment. EES is not just waiting for outside help in solving its problems; it is moving forward with its limited resources to be a viable commercial business. This is very refreshing to see in an organization that has had to struggle with so many difficulties, including significant loss of customers and sales and equipment that is in need of extensive refurbishment. Of course, there is always room for improvement. Exhibit ES.1 is a summary of primary recommendations to the management team of the Company. It includes actions that EES has the ability and authority to take on its own initiative within current laws and regulations. As a practical matter, not all recommendations can be implemented in a short period of time. For that reason, each recommendation has been assigned priorities in terms of its importance and urgency. Progress will only be made if the Company begins implementation of the commercialization recommendations: one step at a time. Eastern Energy System must begin to manage it's own future.

The reader is encouraged to read the entire report for a more in depth discussion of the current situation and the reasons for each of those recommendations made.

Exhibit ES.1 Recommendations for Company Implementation

	RECOMMENDATION	Importance	Urgency
A	Continue to improve accounting and reporting and move toward IAS compliance over the next few years (Chapter 3)	Medium	Medium
B	Engineers and finance specialists should perform a financial analysis on future projects prior to presenting them to management for approval (Chapter 3)	High	High
C	Revise the Cost Accounting Processes to be able to produce reports of estimated costs by line of business (Chapter 3)	Medium	Medium
D	Establish improvement targets for Key Performance Measures in the energy generation, distribution, and billing and collection processes and report on progress monthly (Chapters 5, 6, and 10)	High	High
E	The Management team must take advantage of the KfW and World Bank loan proceeds in the most optimal manner from an operational and financial perspective to realize improvements on the Key Performance Measures (Chapters 5 and 6)	High	High
F	Once the power station and distribution rehabilitation work is completed, sufficient resources must be devoted to periodic maintenance to prevent a recurrence of the situation in the 1990s (Chapters 5, 6, and 7)	High	Low
G	Become more proactive in the regulatory process. For example, develop and propose Incentive Mechanisms to ERA (Chapters 5 and 9)	Medium	Medium
H	Devote sufficient time and resources to the tariff process in order to present its position in a detailed, transparent, understandable manner to have a successful outcome (Chapter 9)	Medium	Medium
I	Continue to revise and support the IT/MIS Strategy (Chapter 11)	Medium	Medium
J	Expand the LAN network and connect the Distribution Office into the network (Chapter 11)	Medium	Medium
K	Develop a more modern Payroll and Personnel System (Chapter 11)	Medium	Medium
L	Develop a System to forecast and monitor the Company's cash position (Chapter 11)	High	High
M	Take every opportunity to manage employee levels (a factor over which management has a significant level of control) based on operating and financial criteria. This may result in reductions in some areas and increases in others (Chapter 12)	Medium	Low

The summary timeline for implementing the Company recommendations is displayed in Exhibit ES.2. The Action Plans for each of the recommendations including the individual tasks, responsible party, and time schedule are detailed in Chapter 13.

Exhibit ES.2 Summary Timeline for Company Recommendations

	2003				2004			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
A. Improve Accounting and Disclosure								
B. Perform Financial Analysis								
C. Revise the cost accounting process								
D. Monitor and report on Key Performance Indicators								
E. Optimize the International Loan proceeds								
F. Devote sufficient resources to maintenance								
G. Become proactive in the regulatory process								
H. Devote sufficient resources to the tariff process								
I. Continue to revise and support the IT/MIS strategy								
J. Connect the Distribution Office to the LAN								
K. Develop a modern Payroll and Personnel system								
L. Develop a system to forecast and monitor cash								
M. Manage the workforce to achieve Company goals								

= Initial Activity = Ongoing Process

EES operates within the context of the overall power sector in accordance with the laws of Mongolia and the policies of the Government, its Ministries, and the Energy Regulatory Authority. This report identifies obstacles to commercialization as a result of those constraints.

Exhibit ES.3 is a summary of primary recommendations made which the Company does not have the authority to implement on its own. It includes changes that the Government of Mongolia, its Ministries, and the Energy Regulatory Authority are encouraged to implement in order that the Company (and other Companies in the sector) has the opportunity to operate on a commercial basis. Again, the reader is encouraged to review the entire report for a more in depth discussion of the issues.

Exhibit ES.3 Sector Recommendations

	RECOMMENDATION	Importance	Urgency
A	The Government of Mongolia should retain the exchange rate risk associated with international loans (Chapter 3)	Medium	Medium
B	The ERA and MOFE must implement a Tariff and Subsidy approval process (Chapter 4)	High	High
C	ERA should develop a plan to have all meters owned by the Distribution Licensees by a given date (Chapter 6)	High	High
D	The ERA should incorporate regulatory incentive mechanisms in the tariff system (Chapter 9)	Medium	Medium
E	The ERA should include an allowance for bad debt in the wholesale and retail tariffs to recognize that virtually no suppliers collect 100% of the amounts billed to customers (Chapter 10)	Medium	Medium
F	The Government of Mongolia should discontinue the practice of having a list of entities that it will not allow suppliers to disconnect. The Government should not use the energy sector to provide non-transparent subsidies to those entities (Chapter 10)	High	High
G	The Government of Mongolia should allow licensees to take more vigorous collection action with retail customers, including State Owned and Budget Entities (Chapter 10)	High	High
H	ERA should develop a "Lifeline" tariff and implement it for household electricity customers (Chapter 10)	High	High
I	If the opportunity arises for the Government of Mongolia to modify the Law on Corporations, it is recommended that the Executive Director of the Company should be a member of the Governing Board (Chapter 12)	Medium	Low
J	The Ministry of Infrastructure should revise the decree requiring licensees to procure materials through the EA. The licensees should be given the option of procuring the items themselves (Chapter 12)	Medium	Medium

The summary timeline for implementing the Sector recommendations is displayed in Exhibit ES.4. The Action Plans for each of the recommendations containing the individual tasks, the responsible party, and the time schedule are included in Chapter 13.

Exhibit ES.4 Summary Timeline for Sector Recommendations

	2003				2004			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
A. GOM to retain exchange rate risk on loans								
B. Implement a Tariff and Subsidy approval process								
C. Develop a policy on meter ownership								
D. Incorporate incentive mechanisms in tariffs								
E. Include allowance for bad debt in tariffs								
F. Eliminate GOM restriction on disconnection								
G. Allow more vigorous collection efforts								
H. Develop and implement a Lifeline tariff								
I. Allow Exec. Director to be on Governing Board								
J. Allow Licensees to decide on materials procurement								

= Initial Activity = Ongoing Process

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1. INTRODUCTION

1.1 THE MONGOLIA ENERGY SECTOR RESTRUCTURING PROGRAM

The "Law of Mongolia on Energy" became effective April 15, 2001. The law stipulated the restructuring of the vertically integrated electricity and heat sector, then part of the Energy Authority under the Ministry of Infrastructure. The restructuring was accomplished by the creation of 18 new entities along the business lines of Generation, Transmission, Dispatch, and Distribution/Supply. The entities are regulated by the Energy Regulatory Authority (ERA), primarily utilizing the tools of licensing and tariff approval. The State Property Committee - responsible for the restructuring and eventual privatization of the Energy Authority's successor companies - has expressed interest in receiving technical assistance from USAID to support the commercialization and privatization activities.

The goal of the Energy Sector Restructuring Project (ESRP) is to assist with the implementation of the new law aimed at restructuring the sector to shed unnecessary fuel, equipment, and labor cost burdens, creating efficient energy facilities and operations that yield a consistent and profitable contractual, regulatory, and industrial framework. This framework will attract investment to support new supply facilities to meet energy demand at least cost while improving supply, reliability, and efficiency.

The activities to be undertaken by the Project include:

- restructuring the vertically integrated utility (EA) - unbundling into state corporations;
- establishment of an Energy Regulatory Authority;
- setting up a licensing regime to ensure that commercial and regulatory commitments are honored and consumer protection is provided;
- development of network operations and access rules;
- development of cost-of-service-based tariffs to allow for recovery of costs and to provide for new investments in the future, including the deregulation of fuel prices and contract prices between eligible consumers and non-regulated suppliers;
- development of a system of competition in generation and perhaps in retail (supply) if economically warranted;
- commercialization of the sector entities and preparation for privatization; and
- privatization of the State owned commercialized companies with level and timing determined by Government policy.

Accomplishment of these activities is dependent on action by the Government of Mongolia. The USAID program will provide the essential framework and supportive technical assistance necessary for the GOM to achieve the program results.

The framework for restructuring is guided by the Law of Mongolia on Energy and subsequent Government Resolutions. During the second half of 2001, most entities of the sector were unbundled into the following components, in accordance with the resolution and the law:

Generation (Electricity and Heat)
Transmission
Dispatching
Electricity Distribution

Heat Distribution
Regulated supply of energy

The 18 new entities were spun off from the Energy Authority, each with their own corporate identities and financial structures. Eastern Energy System is one of the 18 entities. It is unique, however, in the Energy Sector of Mongolia since it is the only entity that remains as a bundled utility providing Generation, Transmission, Distribution, and Retail Supply of both Electricity and Heat. In addition, it operates as an "Electrical Island", having no interconnection with the other Energy Sector participants in Mongolia or the Russian Grid. This creates a different environment and a different set of challenges for EES, especially since this is one of the entities requiring a subsidy from the State Budget because the Government of Mongolia has decided that customers of EES cannot afford to pay the full cost of providing energy to them.

1.2 COMMERCIALIZATION EFFORTS

It is helpful to define what commercialization actually means. "Commercialize" is defined in the dictionary as "to manage on a business basis for profit". "Commercial" is defined as "suitable, adequate, or prepared for commerce". That is exactly what Mongolia hopes to achieve in the commercialization of the individual entities.

A major objective of the Commercialization Program is to work with the management team to facilitate the transition from being a segment of the State controlled, energy system to managing an independent business. Although privatization of the energy sector is an ultimate goal of the Government of Mongolia, the timetable is uncertain and, therefore, it is important to effectively commercialize the companies. It may be several years (or more) before the companies are privatized so it is very important for them to operate as efficiently as possible on a commercial basis. However, effective commercialization will increase the value of the organizations at the time of their eventual privatization. Investors prefer purchasing companies that already have a business focus.

An external view of commercialization is important. Following are some excerpts from a research paper titled Restructuring the Power Sector: The Case of Small Systems" by Robert Bacon that are pertinent to the situation in Mongolia:

> *"Performance assessments of publicly owned entities should make a distinction between entities that have been **corporatized and commercialized** and those that have not been. Commercialization is possible only if the government removes itself from day-to-day interference in such issues as tariff setting and employment. Some countries that have not been ready to privatize their power sector have introduced commercialization (New Zealand, Portugal), an important intermediate step between the most interventionist form of state ownership and privatization. Commercialization may allow many of the potential gains in efficiency to be captured, especially where there is little scope for competition. Small systems may thus find it of little incremental benefit to privatize, provided that the government maintains an "arm's length" relationship with the company. Where this is more difficult, because of the political situation or because of the traditional approach to state companies, privatization may bring permanent benefits that would not be sustainable with a commercialized state entity."*
>
> *"This shift involves a potential gain in **productive efficiency** if private industry can cut costs. Public ownership tends to result in productive inefficiency, both*

because managers have little incentive to reduce costs and because politicians often are willing to increase costs to serve other purposes--for example, providing secure employment. The political incentive to collect revenues or prevent theft of power can also be low."

"Whether a private monopoly will be productively efficient (that is, produce a given output at minimum cost) is uncertain. The few well-established private monopolies (Barbados, Bermuda) appear to work well. The poor performance of many state companies is more likely to be attributable to the nature of their ownership than to their structure."

The commercialization efforts begin with an overall review of the company, focusing on the aspects that are important in a commercial environment such as:

- Financial (accounting, management reporting, cash flow,)
- Planning (operational & financial – focus on short-term)
- Organization and Staffing
- Compensation System (incentives for employees)
- Technical Performance
- Billing and Collection
- Information Systems
- Procurement

Looking also toward the longer term, the commercialization efforts should strive to add value to the entity in such a manner that it is perceived by potential investors as being a viable "Business" with potential for success in a commercial environment. For that reason, the efforts will also focus on critical aspects that strategic investors look for such as:

- A strong management team focused on results
- A reasonable regulatory environment
- Progress on critical success factors such as:
  - Ability to collect revenue
  - Efficient operations (good fuel rates and minimization of electrical losses)
  - Reduction of expenses

1.3 OVERVIEW OF THE COMPANY

Eastern Energy System (herein referred to as "EES" or the "Company") is a State Owned Shareholding Company operating under the Company Law of Mongolia. At the present time, its shares are 100% State Owned by the following State Agencies:

- Ministry of Infrastructure (41%)
- Ministry of Finance and Economy (20%)
- State Property Committee (39%)

The Governing Board consists of the following members:

- Mr. Batrenchin, Chairman of the Governing Board, Specialist of the Fuel and Energy Department of the MOI.
- Mr. Baldorj - Specialist of the Fuel and Energy Department of the MOI.

- Mr. Mondor - Head of the Project and Program Department of the Energy Authority.
- Mr. Sedbazar - Head of the Engineering Department of the EA.
- Mr. Olziisaikhan - Head of the Privatization Department of the SPC.
- Mr. Altantuya - Specialist of the Privatization Department of the SPC.
- Mr. Bayarmaa - Specialist of the MOFE.

There is another board, called the Monitoring Board, acting in a capacity similar to an Audit Committee with the following members:

- Mr. Dorjsembed - Head of the Monitoring Board, Specialist of the MOFE.
- Mr. Sanereg - Specialist of the SPC.
- Mr. Toiruul - Specialist of the Financial and economical department of the EA.

The Company holds several licenses issued by the Energy Regulatory Authority of Mongolia (ERA) authorizing it to:

- Generate Electricity
- Generate Heat (and hot water)
- Distribute Electricity
- Distribute Heat
- Perform the Electricity Supply Function
- Perform the Heat Supply business

The licenses grant EES various rights and impose various requirements on the Company. As a regulated entity operating under the Law of Mongolia on Energy, its tariffs must be approved by the ERA. The “Tariff” process for EES is made more complex, however, due to the fact that the Ministry of Finance and Economy intervenes in the process on behalf of the Government of Mongolia to determine the subsidy required from the State Budget.

The Power Station is the Combined Heat and Power (CHP) type, producing electricity and heat in a combined cycle. In 1969 3 boilers designed to produce 35 tons per hour of superheated steam and 2 turbines with a capacity of 6 MW each were installed. In 1980, 3 additional boilers designed to produce 75 tons per hour were installed along with 2 turbines with a capacity of 12 MW each. This resulted in a total power station capacity of 36 MW and 163 Gcal per hour of heat. The peak electrical load reached in 2001 was 12.5 MW. The power station burns coal (lignite) acquired from the Aduunchuluun Mine, located 7 km from the power station with a heating value of approximately 2,200 to 2,300 kcal/kg.

During the year 2001, the power station produced net electrical output of 35.5 GWh of electricity and 148.2 thousand Gcal of heat and hot water.

The electricity produced is provided at 110,000 and 35,000 volts to the Eastern transmission grid, serving the Dornod and Sukhbaatar Aimags and the major cities of Choibalsan and Baruun Urt.

Hot water is provided in the winter for district heating and year around for general hot water needs of businesses and households.

The company has approximately 463 employees. The Senior Management of the company consists of:

Mr. Tumurkhuyag, Executive Director
Mr. J. Erdenetsogt, Chief Engineer with responsibility for power station operations
Mr. Bayambaa, Head of Sales, Transmission, and Distribution
Mr. Ayush, Head of Administrative Department
Mr. Enkhbaatar, Head of Financial and Accounting Department
Mr. Erdenetogtokh, Head of Supply Department
Mr. Erdenbulgan, Manager of Planning
Mr. Banzragch, Head of Engineering Department
Mr. Enkhbaatar, Head of Sales Department

A brief financial picture of the company will give the reader a feel for the situation. Following are selected summary Balance Sheet items at 31 December 2001 in millions of Tg:

Customer Accounts Receivable	490
Inventory	937
Other Current Assets	351
Net Fixed Assets	15,879
Total Assets	17,660
Accounts Payable	423
International Loan	7,725
Equity	9,512

The summary income statement for the year 2001 (in millions of Tg) is as follows:

Revenue from Electricity Sales	1,352	
Revenue from Heat Sales	591	
Total Revenue		1,943
Fuel Expense	904	
Depreciation	760	
Salaries and Related Costs	575	
Other Expenses	579	
Total Expenses		2,818
Net Income (loss)		(875)

One can see that the subsidy needed to break even in 2001 (875 million Tg) is significant in relation to total costs (31%)

A detailed discussion of the financial situation of the company is presented in Chapter 3.

The Company faces many challenges on its path toward being a true commercial business. Significant problems include:

- Loss of customer base with the resulting very poor economic climate and extreme underutilization of capacity
- The need to continue refurbishing the power station and distribution facilities
- High technical and commercial losses
- High levels of accounts receivable

It is the author's opinion, however, that the EES management team is "Doing the Right Things" to address the problems and use business management techniques to operate in the new commercial environment. They are not waiting for Donors or the State to solve their problems. Instead, they are using their limited resources to start down the path to improvement. Of course, Donor funds for refurbishment are very much needed and the Government of Mongolia can take steps to make the transition easier.

2. IMPLEMENTING A BUSINESS MANAGEMENT FOCUS

2.1 THE TRANSITION TO AN INDEPENDENT BUSINESS

Prior to the restructuring of the Mongolian Power Sector in 2001, Eastern Energy System was a separate "entity" within the Energy Authority, a unit of the Ministry of Infrastructure. It had its own balance sheet and income statement and was responsible for operating and maintaining the power system in Eastern Mongolia. However, many aspects of operations were dictated by the Energy Authority including output levels, procurement policies, and human resource management. All financial aspects were dictated by either the Energy Authority (funds for operations, maintenance, capital improvements, etc) or the Ministry of Finance and Economy (tariffs and subsidy levels).

Change is never easy, especially in a company such as this one. There are a significant number of risks and uncertainties involved, including the new industry structure, a new tariff system, access to funds for operations and capital improvements, and the status of subsidies from the State Budget. On the other hand, there are also rewards associated with operating an independent business. The EES management team and employees will increasingly have more control of their future and should experience less interference from the Energy Authority and Ministry of Infrastructure. They can directly benefit from meaningful cost reductions they achieve and work to increase the value of the business (Shareholder Value).

The primary focus of the management team has historically been on the technical operation of the facilities in order to produce whatever level of output was required. In the newly restructured environment, this technical focus must be maintained (and strengthened where possible) but the primary challenge to the management team of this newly created company is to develop a business management focus. There is definitely a Culture Change required by all company personnel. Compared to the change occurring in companies in highly developed countries, the management team of EES faces a much greater challenge. The paradigm shift required here is much more fundamental than the shift experienced in developed countries over the past 10 years.

One of the objectives of the Commercialization work is to work with the management team to facilitate the transition from being a segment of the Energy Authority to managing an independent business. Although privatization of the energy sector is an ultimate goal of the Government of Mongolia, the timetable is uncertain and, therefore, it is important to effectively commercialize the companies. It may be several years (or more) before the companies are privatized, and therefore, it is very important for them to operate as efficiently as possible on a commercial basis.

2.2 INSTILLING BUSINESS MANAGEMENT CONCEPTS

Given the complexities of a company such as EES, the management team often becomes very involved in day-to-day operational and technical matters and forgets that their main task is to run a business. It is often helpful for managers of a large business to focus on the basics and keep in mind the things that all good small business owners do on a daily basis. In fact, many of the modern business management theories focus on having large organizations (that often become bureaucratic over time) think and act like small businesses. Basic business management principles may be phrased in many ways, but generally include the following:

- Get to know the Customer
- Provide efficient and economic service
- Keep the Customer happy by providing good service
- Price the product or service properly
- Collect revenues
- Have a minimal number of organizational layers
- Monitor expenses closely
- Control costs
- Inspire teamwork among employees in different functional areas
- Focus the entire team on achieving a few key objectives
- Reward employees for the contributions they make

In the context of the Mongolian power sector entities, the situation is that few, if any, members of the management team have experience in managing a commercial business. It is, therefore, very important to start with basic business management principles and build upon those as we move forward. The principles outlined above take on a new meaning for the recently restructured entities in the power sector. For example:

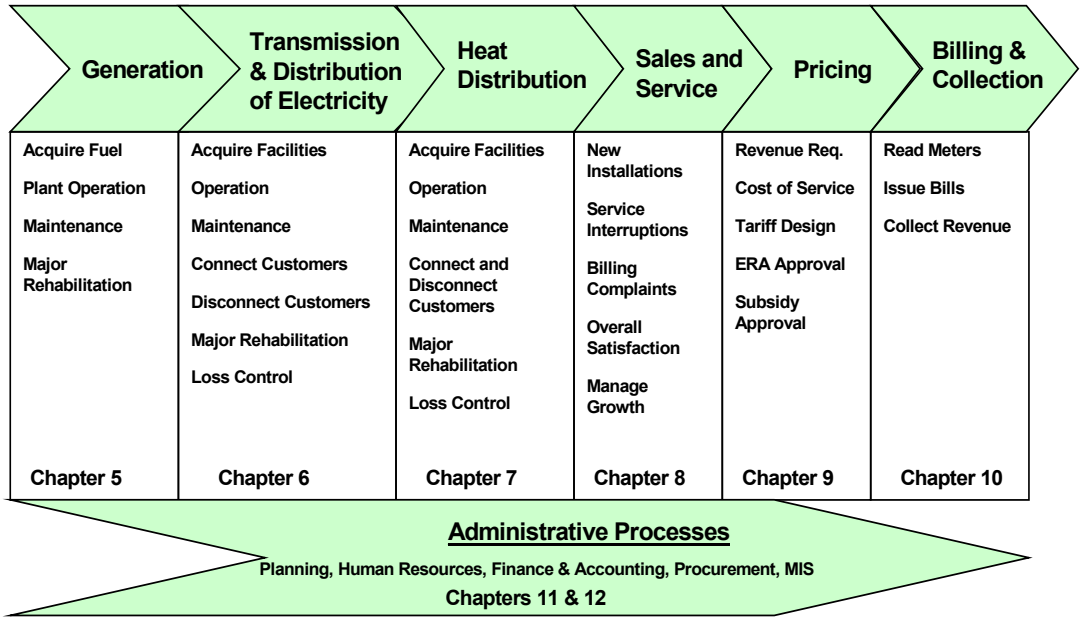
- Providing good service is now something done to satisfy customers and fulfill the requirements of a commercial license, as opposed to following the dictates of a government ministry
- Pricing is now a very critical (and more complex) process that has a direct impact on the financial health of the company, requiring EES to interface with the newly established Energy Regulatory Authority
- Monitoring and controlling costs is now critical to the financial health of the company, not an external constraint imposed by a ministry

Commercialization efforts with EES have focused on reviewing the overall business and focusing on basic management principles. On 03 June 2002, a Capacity Building Seminar titled “Eastern Energy Systems – Moving Toward a Commercial Environment” was conducted to educate the entire management team on business management concepts and ways to view the Company as a commercial entity. The seminar materials are contained in Appendix C-1.

2.3 THE VALUE CHAIN FOR EES

There are various ways to view a business and use that orientation to manage effectively. A business can be thought of as a collection of basic processes. If the individual processes are managed properly, the business has an opportunity to be successful. A “Value Chain’ is one way to illustrate the various processes and portray information in a simplified format. The Value Chain for EES can be portrayed as follows:

Exhibit 2.1 The Value Chain for EES



It is helpful to keep the entire management team focused on these key processes. A chapter is devoted to each of these processes (as shown in the diagram) where they will be reviewed in greater detail.

2.4 OVERALL ASSESSMENT OF THE CURRENT SITUATION

There are many ways in which a business can be assessed. An obvious one is from a financial point of view and others include operational and technical assessments. The Strategic Planning process provides a useful way to view a business entity in terms of its Strengths and Weaknesses as well as its Opportunities and Threats (often called a SWOT Analysis).

Strengths and weaknesses are essentially internal to the organization and relate to matters concerning resources, programs and organization in key areas. These include:

- Sales and marketing;
- Management: systems, expertise, and resources;
- Operations: efficiency, capacity, and processes;
- Product and service quality
- Competitiveness;
- Finances: resources and performance;
- Cost Structure;
- Systems: organization and structures.

The management team has a significant amount of control over these internal issues and, therefore, must focus their efforts to:

- Build on the strengths
- Resolve or overcome the weaknesses

Opportunities and threats are generally external situations confronting a company and can exist or develop in the following areas:

- The evolving industry and market structure that presents many uncertainties
- The evolving regulatory and tariff methodologies of the newly created Energy Regulatory Authority
- The marketplace with its many economic and social factors (customers; economic situation, and social/demographic issues)
- Political and environmental factors
- Competition that may be creating new threats or opportunities

The management team has less control over these external issues than it does on the internal ones, however, it must focus on:

- Taking advantage of opportunities whenever possible
- Avoiding or dealing with threats

Exhibit 2.2 SWOT Analysis

STRENGTHS	WEAKNESSES
Business Mentality	Low Sales and Capacity Utilization
Working on the Right Things	Slow Paying Customers
Available Capacity	One Coal Supplier
GOM Provides Subsidy	Not Interconnected
Donors Willing to Lend	Large Loan Repayments
Progress on Loss Reduction	Lack of Funds
Cost & Performance Management	Subsidy is Uncertain
Bonus Plan	

OPPORTUNITIES	THREATS
New Major Customer – Zinc Mine	Zinc Mine does not achieve estimated sales levels
Readily Available Capacity (Can accommodate new Industry NOW)	Coal mine increases price
New Money Available: World Bank and German Loans	Continuing Poor Economic Situation: Low incomes of households Lack of industry

2.5 CONTINUOUS IMPROVEMENT

In order to build on the strengths, overcome the weaknesses, take advantage of opportunities, and deal with threats, the company must implement a Continuous Improvement philosophy. The concept of Continuous Improvement is based on the premise that improvement is not a "One Time Project". The Company must adopt a management philosophy of continually improving its performance on all key business processes. This requires:

- Involving the entire organization to create a spirit of teamwork
- Keeping all employees focused on what is really important to provide momentum
- Monitoring and report progress on a monthly basis to the entire team (not just managers)
- Rewarding performance based on results

EES management must recognize that resources (personnel and money) are limited. Concentrating on a limited number of initiatives at one time and devoting sufficient resources to those initiatives is critical. Each managerial area should work on only a few aspects of each of the processes shown in the value chain to be most effective.

2.6 CRITICAL SUCCESS FACTORS AND KEY PERFORMANCE MEASURES

The management team is responsible for a large entity that must effectively and efficiently produce and distribute energy 24 hours per day, 7 days per week. This often means that managers and employees spend their time "putting out fires", not literally, but in the sense that day-to-day problems and the details of operations often consume the entire working day.

It is important to take a more strategic, longer-term view in order to achieve continuous improvement. Management must determine what the critical factors are that will allow it to be successful in the future, focus efforts on those factors, and monitor progress toward improvement. Some of the Critical Success Factors for EES can be expressed as follows:

- Improve operational efficiency through:
  - Reduction of station use
  - Improvement of fuel rates
  - Reduction of Technical and Commercial Losses
- Collect revenue using all available means
- Achieve financial sustainability
- Meet licensing requirements
- Achieve the proper level of tariffs
- More certainty in the Subsidy process
- Properly maintain the plant and equipment (given limited resources)
- Effective management of the employee complement
- Cost effective and timely procurement
- "Manage" (to the extent possible) the available international loan funds to achieve maximum operational and economic benefit

3. FINANCIAL SITUATION OF THE COMPANY

3.1 INTRODUCTION

Since Eastern Energy System was an operating unit of the Energy Authority prior to restructuring, it had its own set of accounts, including a Balance Sheet and Income Statement. Although the accounting procedures somewhat conform to International Accounting Standards (IAS), they cannot be considered to be in strict compliance with IAS. Readers should keep this in mind when reviewing information in this report and, in fact, any financial information from the power sector in general. The Company does use a double entry bookkeeping system, the standard subsidiary ledgers (accounts payable, accounts receivable, inventories, expenses, etc.) are kept primarily on an accrual basis, and statements are produced that follow the basic IAS formats. The Company actually has a reasonable, workable accounting system as compared with energy entities in many developing countries, showing that it has made significant progress. See Chapter 11 for a discussion of the MIS aspects of the accounting systems.

There are several limitations to the financial statements that the reader should be aware of, however, including:

- Although an "Audit" is performed by a local accountant, it is not in accordance with IAS.
- There is no disclosure to enable the reader to obtain a good understanding of the statements. The reader does not know, for example, the basic accounting principles used to produce the statements or the reasons for major deviations in balances. Adequate disclosure is a critical element of IAS compliance.
- There is not always consistency in presentation
- IAS Accounting policies are not followed in the following areas:
  - There is no bad debt expense recorded on the income statement and no allowance for bad debt on the balance sheet, resulting in an understatement of expense and an overvaluation of Accounts Receivable
  - Fixed Assets are not properly valued since the Mongolian power sector has historically capitalized maintenance costs as opposed to charging them to expense. This has the effect of understating maintenance expense and overstating the value of fixed assets. Future capacity building seminars for energy sector companies can address this and other accounting issues.
  - International Loan Liabilities are not recorded until the projects are completed, resulting in an understatement of Construction Work in Progress and an understatement of Long-Term Debt.
  - No interest expense has been recorded to date, although the on-lending agreements between the Company and the GOM call for interest to be paid. This results in an understatement of expenses and interest payable.

It is recommended that the Company continue to improve in this area and move toward IAS compliance over the next few years. This would provide several benefits, including

the fact that strategic investors place a high importance on financial statements in compliance with IAS.

3.2 HISTORICAL FINANCIAL RESULTS

Appendix A contains the detailed financial statements from 1998 through September 2002. The reader is encouraged to review that information for details, if necessary. The financial information presented in the body of this report has been summarized to focus on the significant items. The key financial statements are summarized in Exhibits 3.1 and 3.2. For the year 2002, the balance sheet data is as of 30 September and the income statement data is for the nine months ended 30 September (denoted as YTD 2002).

Exhibit 3.1 Balance Sheet

Summarized Balance Sheet (millions of Tg)

	31-Dec 1997	31-Dec 1998	31-Dec 1999	31-Dec 2000	31-Dec 2001	30-Sep 2002
Current Assets						
Cash	49	58	9	25	238	90
Customer Accounts Receivable	498	752	668	558	490	573
Other Accounts Receivable	21	196	454	243	92	87
Fuel Inventory	67	43	44	104	259	162
Other Inventories	722	519	647	541	678	706
Prepaid Expenses	322	407	532	73	21	99
Total Current Assets	1,678	1,976	2,354	1,545	1,778	1,717
Fixed Assets	5,387	5,889	6,423	11,245	17,850	18,170
Accumulated Depreciation	(1,759)	(1,985)	(2,234)	(2,522)	(1,970)	(2,540)
Net Fixed Assets	3,628	3,904	4,189	8,723	15,879	15,630
Other Assets	0	0	0	0	2	2
TOTAL ASSETS	5,305	5,880	6,543	10,268	17,660	17,349
LIABILITY AND EQUITY						
Accounts Payable	1,490	1,743	2,481	3,734	423	519
International Loan Payable	0	0	0	0	7,725	7,725
Equity	3,816	4,137	4,062	6,534	9,512	9,106
TOTAL LIABILITY AND EQUITY	5,305	5,880	6,543	10,268	17,660	17,349

Exhibit 3.2 Income Statement

Summary Income Statement (Millions of Tg)

	Year 1999	Year 2000	Year 2001	YTD 2002
Revenue				
Electricity	911	1,097	1,352	1,007
Heat	452	442	591	358
TOTAL REVENUE	1,363	1,539	1,943	1,365
Operating Expenses				
Fuel	727	748	904	494
Salaries and Related Costs	412	441	575	503
Depreciation	254	295	760	569
Current Maintenance	131	158	152	111
Other Operating Expenses	242	349	342	224
TOTAL OPERATING EXPENSES	1,766	1,991	2,732	1,901
Non-Operating Income - Net	(14)	(39)	(86)	69
Interest Expense	-	-	-	-
NET INCOME	(418)	(491)	(875)	(467)

Analysis of these statements indicates the following:

- Customer Accounts Receivable at 31 December 2001 and 30 September 2002 represent 91 and 106 Days' Sales respectively
- Fuel Inventory at 31 December 2001 and 30 September 2002 represents 103 and 65 days worth of supply respectively. These are significantly high levels given that the mine is so close and the probability of supply interruption is very low. However, an analysis of the Accounts payable indicates almost an equal amount owing to the coal mine.
- Fixed assets increased significantly in 2000 and 2001 due to the refurbishment work at the power station financed by the KfW loan (7.7 billion Tg) and the construction of the 110 KV transmission line to Sukhbaatar Aimag (3.9 billion Tg). Of course, this results in higher depreciation expense as well.
- Revenue increases each year due to slightly increasing sales and higher tariffs.
- The cost structure of the company for 2001, the most recent full year, includes the following major elements:
  - Fuel 33%
  - Salaries and Related Costs 21%

- Depreciation 28%
- Current Maintenance 6%
- Other Operating Costs 13%

- The reader will note that there is no interest expense recorded to date. Although the on-lending agreements call for interest to be paid by EES to the GOM, the Company did not record the interest as an expense or make any payments.

3.3 LINE OF BUSINESS FINANCIAL SITUATION

EES is involved in several lines of business. One way to classify these businesses is as follows:

- Electricity
  - Generation
  - Transmission
  - Distribution
- Heat

As a commercial entity, it is important to understand the cost of providing the products or services to the individual business lines in order to manage these businesses and make pricing decisions. In addition, as a regulated company, EES must justify its costs and prices to the ERA. For those reasons, it is important to be able to identify costs to the various categories. Traditionally, EES has allocated its costs to the major categories of Electricity and Heat. Further breakdown was not performed. Of course, since fuel is a major cost and it is used in a joint process to produce electricity and heat, estimates must be utilized to allocate the cost. Many other costs cannot be directly assigned to the lines of business and, therefore estimates and professional judgment must be used. The Planning Manager was requested to provide a further breakdown of the electric costs for the year 2001 to Generation, Transmission, and Distribution. That information was provided and is contained in Appendix A-4 and summarized in Exhibit 3,3.

Exhibit 3.3 Estimated 2001 Cost Allocation to Lines of Business

Summary of Estimated Cost Allocation (Millions of Tg)

Component	Total	Heat	Electric			
			Total	Generation	Transmission	Distribution
Fuel	904	488	416	416	0	0
Salaries and Related Costs	575	172	402	310	21	71
Depreciation	760	228	532	408	117	7
Current Maintenance	152	46	107	76	2	29
Other Operating Expenses	341	103	238	123	14	100
TOTAL COSTS	2,732	1,037	1,695	1,333	154	208
Revenue	1,947	591	1,356			
INCOME (LOSS)	(785)	(446)	(339)			

This provides us with further insight into the financial situation of EES for the year 2001. Some highlights include:

- Heat revenues covered 57% of costs
- Electric revenues covered 80% of costs
- The average cost to produce 1 kWh (based on billed sales of 26 GWh) was:
  - 16 Tg for fuel
  - 51 Tg for total generation cost
  - 65 Tg for total cost

Of course, other useful information for pricing decisions can be obtained from the detailed information. Eventually, EES will want to further refine its tariffs based on the costs to serve various classes of customers.

It is recommended that the Company refine its cost accounting process in order that reasonable cost allocations by lines of business can be developed in the future.

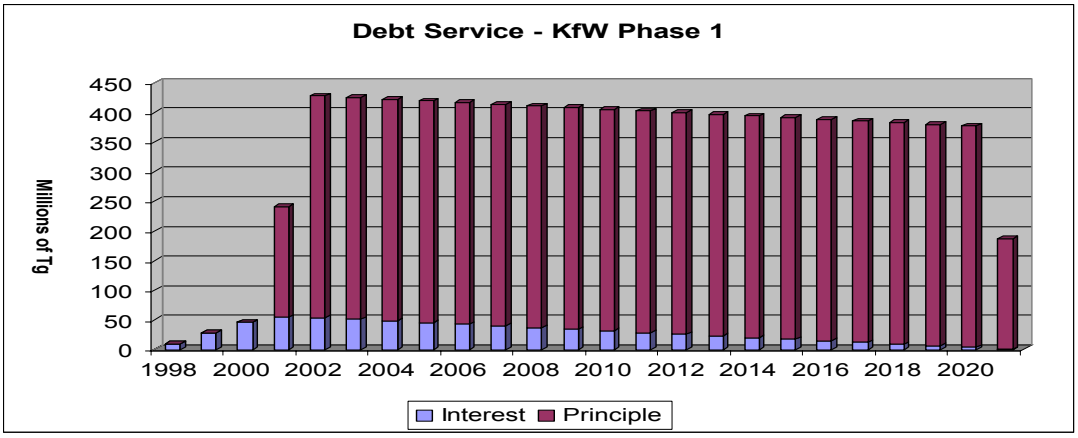
3.4 INTERNATIONAL LOANS

3.4.1 Power Station Refurbishment – Phase I

The Company has significant long-term debt outstanding due to refurbishment work performed on the power station and financed by a loan from KfW. Phase I of the project has been completed at a cost of 15 million DM, or approximately 7.5 billion Tg, at the 31 December 2001 exchange rate. As discussed in Section 5.3, the objective of this phase of the project was to refurbish the 3 larger (75 tons per hour) boilers and the 2 larger (12 MW) turbines due to sever deterioration.

Following the restructuring of the energy sector in 2001, the Ministry of Finance and Economy developed on-lending agreements with the newly established companies for the outstanding international loans. This loan calls for interest to be paid on the outstanding balance at the rate of 0.75% per year. Principle repayment is scheduled to begin in December 2001 with semi annual amounts of 375,000 DM (187 million Tg). Although the Government of Mongolia has been meeting its debt service obligations to KfW, EES has not made any payments to the GOM under the on-lending agreement. Exhibit 3.4 shows the debt service requirements for which EES is responsible. Detailed information is contained in Appendix A-5.

Exhibit 3.4 Debt Service – KfW Phase I Loan

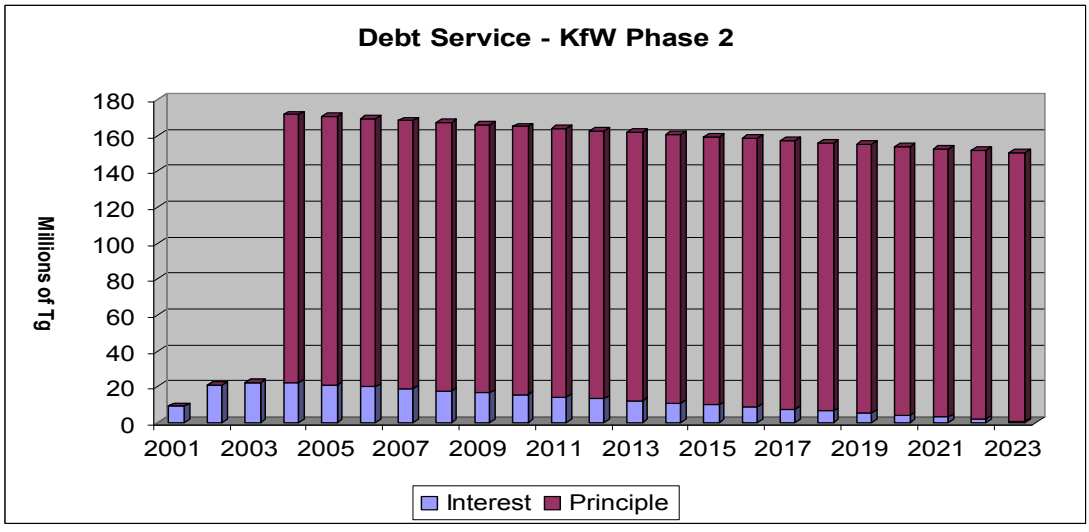


3.4.2 Power Station Refurbishment – Phase II

Phase II of the project is currently ongoing and the loan commitment is for 6 million DM or approximately 3 billion Tg, at the 31 December 2001 exchange rate. As discussed in Section 5.3, the objective of this phase of the project is primarily to install a new water treatment plant and associated equipment, rehabilitate the oil pumping station, and install a new ash-settling basin.

The on-lending agreement for this loan calls for interest to be paid on the outstanding balance at the rate of 0.75% per year. Principle repayment is scheduled to begin in June 2004 with semi annual amounts of 150,000 DM (75 million Tg). Exhibit 3.5 shows the debt service requirements for which EES is responsible. Detailed information is contained in Appendix A-6.

Exhibit 3.5 Debt Service – KfW Phase II Loan

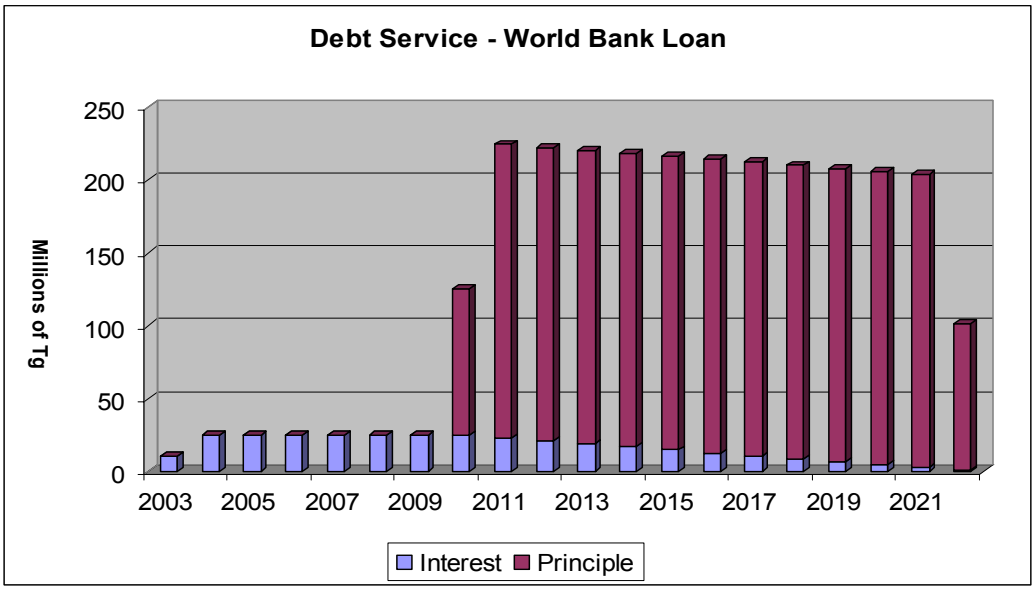


3.4.3 Electricity and Heat Distribution System Rehabilitation

The World Bank has proposed a major new loan covering many aspects of the Power Sector of Mongolia. A subcomponent of the loan of approximately 2.1 million US Dollars (USD) is allocated for Eastern Energy System. Work is expected to begin at EES in 2003. One component of approximately 1 million USD is for electricity distribution system rehabilitation work. The specifics of the project are discussed in Chapter 6. The other component of approximately 1.1 million USD is for heat distribution system rehabilitation work and the specifics of that project are discussed in Chapter 7.

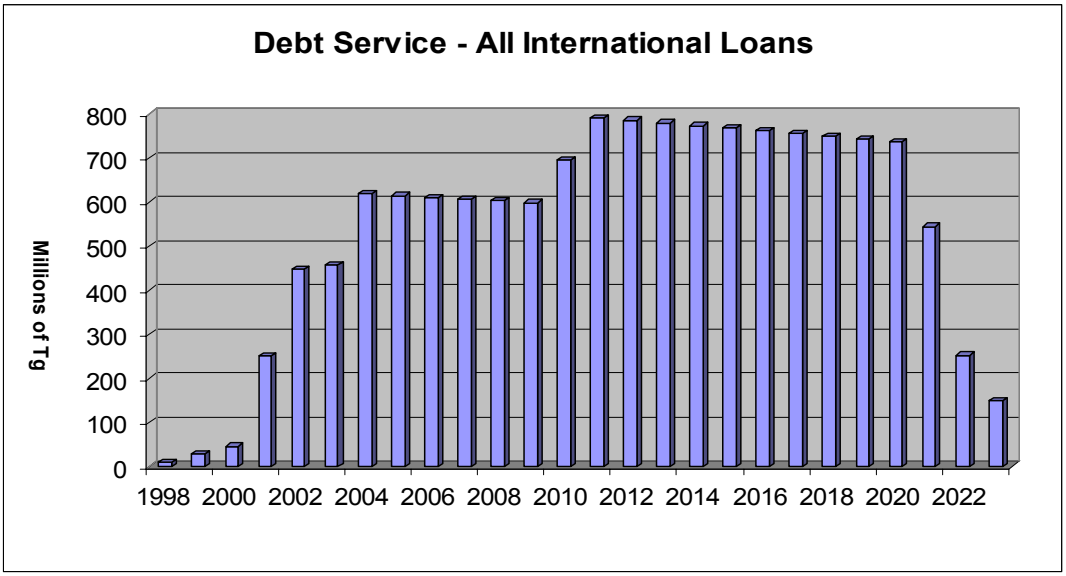
The exact disbursement schedule for the loan is not currently available and the on-lending agreement has not yet been developed. In order to give the reader a feel for the debt service requirements in the future, however, estimates have been obtained for the disbursements, interest requirements, and principle repayments. The results are summarized in Exhibit 3.6 and the details are contained in Appendix A-7.

Exhibit 3.6 Debt Service – World Bank Loan



It is interesting to note the total estimated debt service for the three loans as shown in Exhibit 3.7.

Exhibit 3.7 Total Debt Service



It is informative to put the debt service requirements in perspective. Total operating expenses of EES in 2001 were approximately 2.7 billion Tg. The estimated debt service in 2003 of 450 million Tg would represent 17% of those costs. The debt service of 600 million Tg in the years of 2004-2009 would represent 22% and at the peak year of 2011 the percentage would be 30%. Of course, in future years, the benefits of these projects will be realized and sales will grow, especially considering new customers such as the zinc mine. The current tariff policy provides for recovery of international loan costs, a positive factor for EES. The recovery is in the form of (1) depreciation expense being included in tariffs (providing cash flow for repayment of principal) and (2) interest expense being included in tariffs. The Company must keep in mind that the cash flow from depreciation recovery in tariffs must be used for principal repayments, not for other purposes.

International loans involve a loan from an international source (country, development bank, etc.) to the Government of Mongolia. The loan is generally denominated in the currency of the lender, which in the case of the loans for EES is DM (actually the Euro) for the KfW loans and US Dollars for the World Bank loan. The Government then “On-lends” the funds to the recipient of the project (EES). It should be noted that there is significant exchange rate risk associated with these loans since they extend over significant periods of time. A prudent commercial entity exposed to such risk would hedge that risk with an appropriate financial arrangement, or series of arrangements, involving a cost to the entity. EES is a rather small entity and does not have the expertise or financial resources to effectively hedge that risk.

It is, therefore, recommended that the GOM retain the exchange rate risk associated with this and other international loans. The GOM already has the exchange rate risk since it is the entity ultimately responsible for satisfying the requirements of the International Loans. Also, it is the only entity in Mongolia that (through the Ministry of Finance and Economy or the Bank of Mongolia) has the expertise and resources to either hedge the risk, or bear

the potential loss if the Togrog depreciates relative to the other currencies. If this recommendation is accepted, the on-lending agreements should be rewritten to denominate the debt service (interest and principle payments) in Togrog as opposed to the foreign currency. Of course, the GOM may decide to pass along all or part of the cost of hedging to EES and the other companies through the on-lending agreement.

3.5 FINANCIAL PLAN

The company prepares a financial plan (budget) for the upcoming year and monitors progress against the budget throughout the year. For the year 2002, the summary plan is shown in Exhibit 3.8. The detailed plan is shown in Appendix A.

Exhibit 3.8 Plan for 2002

Summary of the Plan for the Year 2002

Description	Unit of Measure	Amount
Gross Generation	Millions of kWh	51.6
Station Use	Millions of kWh	15.8
Net Electricity Output	Millions of kWh	35.8
Sales	Millions of kWh	27.2
Heat Sales	Millions of Gcal	150.0
Fuel Rate - Electric	Grams per kWh	795
Fuel Rate - Heat	Kg per Gcal	224
Revenue – Electricity	Millions of Tg	1,452
Revenue - Heat	Millions of Tg	595
Total Revenue	Millions of Tg	2,067
Fuel Expense	Millions of Tg	935
Depreciation	Millions of Tg	756
Salaries and Related Expenses	Millions of Tg	577
Other Operating Expenses	Millions of Tg	497
Interest Expense	Millions of Tg	79
Total Expenses	Millions of Tg	2,844
Net Income (Loss) without Subsidy	Millions of Tg	(777)

The above indicates that a subsidy of 777 million Tg would have been required to allow EES to break even for the year. No subsidy was received during the first 10 months of the year, however. In November 2002, a subsidy of 228 million Tg was received by EES from the State Budget. See Chapter 4 for a discussion of the tariff and subsidy process.

On a monthly basis, the Planning Department monitors progress against the plan and reports the results to the management team. For the first three quarters of 2002, the summary results are presented in Exhibit 3.9

Exhibit 3.9 Actual vs. Plan

Actual Results Compared to Plan for the First Three Quarters of 2002

Description	Unit of Measure	Plan	Actual
Gross Generation	Millions of kWh	35.5	34.0
Station Use	Millions of kWh	10.5	9.9
Net Electricity Output	Millions of kWh	25.0	24.1
Sales	Millions of kWh	18.9	18.6
Heat Sales	Millions of Gcal	95.0	84.3
Fuel Rate - Electric	Grams per kWh	814	780
Fuel Rate - Heat	Kg per Gcal	225	225
Revenue – Electricity	Millions of Tg	991	1,007
Revenue - Heat	Millions of Tg	357	358
Total Revenue	Millions of Tg	1,348	1,365
Fuel Expense	Millions of Tg	600	494
Depreciation	Millions of Tg	573	569
Salaries and Related Expenses	Millions of Tg	523	503
Other Expenses	Millions of Tg	417	266
Interest Expense	Millions of Tg	0	0
Total Expenses	Millions of Tg	2,113	1,832
Net Income (Loss)	Millions of Tg	(765)	(467)

As shown in Exhibit 3.8, the actual loss for the first three quarters of the year is 467 million Tg (as opposed to the 765 million Tg loss assumed in the plan). Therefore, EES did not recover 25% of its costs. As previously mentioned, no subsidy was received from the State Budget during the first 3 quarters. The reader can, therefore, see the importance of developing a realistic subsidy process in the future. Such a process is discussed in Chapter 4.

3.6 LONGER TERM FORECAST

The company also prepared a longer-term plan for the period 2002 through 2005. This could actually be referred to as an intermediate term forecast. The plan, as presented by the EES Planning Manager is shown in Exhibit 3.10.

Exhibit 3.10 Plan for 2002 - 2005

Project of the plan on production and investment of EES between 2003-2005

#	Items	Measurement unit	2002 planned	2002 Expected	2003	2004	2005
1	Electricity production	Th.kWh	51,030.0	49,094.8	49,700.0	60,500.0	67,166.0
2	Electricity of station use	Th.kWh	15,230.0	14,412.2	15,200.0	16,000.0	16,000.0
	Electricity of station use	%	29.8	29.4	30.6	26.4	23.8
3	Distributed electricity	Th.kWh	35,800.0	34,682.6	34,500.0	44,500.0	51,166.0
	Distributed heat	M.Cal	150.0	139.4	141.0	150.0	150.0
4	Sales electricity	Th.kWh	27,208.0	26,504.3	26,605.0	35,600.0	41,956.1
	Heat	M.Cal	150.0	139.4	141.0	150.0	150.0
5	Loss	Th.kWh	8,592.0	8,178.3	7,895.0	8,900.0	9,209.9
		%	24.0	23.6	22.9	20.0	18.0
6	Sales revenue	Th.tug	2,007,027.9	2,033,892.3	2,617,630.0	3,248,302.2	3,652,126.6
	Electricity	Th.tug	1,412,285.0	1,433,128.1	1,690,300.0	2,261,780.9	2,665,605.3
	Heat	Th.tug	594,742.9	600,764.2	927,330.0	986,521.3	986,521.3
7	Av.sales pricu						
	Electricity	tug/kWh	50.3	50.3	63.5	63.5	63.5
	Heat	tug/Gcal	3,841.8	3,841.8	6,576.8	6,576.8	6,576.8
8	Total expense	Th.tug	2,870,527.9	2,658,230.7	2,887,458.0	3,032,933.8	3,109,705.1
	Electricity	Th.tug	1,798,719.8	1,675,538.5	1,811,955.5	1,924,712.1	2,001,483.4
	Heat	Th.tug	1,071,808.1	982,692.2	1,075,502.5	1,108,221.7	1,108,221.7
9	Unit cost						
	Electricity	tug/kWh	66.1	63.2	68.1	54.1	47.7
	Heat	tug/Gcal	124.7	120.2	136.2	124.5	120.3
10	Income/ Loss	Th.tug	-863,500.0	-624,338.4	-269,828.0	215,368.4	542,421.5
	Sabcidy	Th.tug		492,454.0	269,828.0	215,368.0	0.0
11	Total employees	number	470	468	470	470	470
12	Average salary	tug	91,324.9	87,379.0	96,116.9	105,728.6	116,301.4
13	Investment	Th.tug	3,832,844.2	3,600,000.0	200,000.0	2,820,000.0	200,000.0
	From this - Own investment	Th.tug	532,844.2	300,000.0	200,000.0	400,000.0	200,000.0
	- loan	Th.tug	3,300,000.0	3,300,000.0	0.0	2,420,000.0	0.0

Discussions with the Planning Manager indicate that the 2003 sales forecast is very conservative and includes no sales to the new zinc mine. Sales in 2004 increase by more than 10 million kWh (20%) and in 2005 by an additional 7 million kWh, representing full operation of the zinc mine. The significant increase in tariffs late in 2002 will have a full year effect in 2003 and the subsidy from the State budget of approximately 269 million Tg is close to the amount estimated considering the new tariffs being in effect for a full year.

3.7 BENEFITS EXPECTED FROM THE NEW ZINC MINE

The Tsairtmineral zinc mine (a joint Mongolian – Chinese joint venture) is currently being developed in the Sukhbaatar Aimag. As a new major customer, if the mine reaches its expected level of operation, it will allow EES to cover a significantly greater amount of its fixed costs, therefore requiring less of a subsidy from the State Budget in future years. This is an extremely positive development for EES, its customers, and the Mongolian economy in general. Mining ventures, of course, can be quite risky and, therefore, the level of sales to the mine is very uncertain.

As discussed in Section 8.2, the mining company is paying for the feeder line and substation to serve the mine; therefore, EES will require no additional investment to serve the customer. The margin on the incremental sales is 40 Tg / kWh. The load expected during initial startup is expected to be 1.2 million kWh per year, providing EES a 48 million Tg contribution to fixed costs. At estimated full operation in future years the sales are expected to be 15 million kWh, providing a 600 million Tg contribution to fixed costs.

3.8 FINANCIAL ANALYSIS

In the new industry environment, the company must adopt a more commercial or business orientation. In prior years, most decisions, including investment decisions, were made externally by Ministry of Infrastructure personnel. In the future, the company will be responsible for managing its operations and investments in an economic manner.

Since the topic of financial analysis is a new one for many energy sector personnel, a capacity building seminar on financial analysis was conducted at EES for the management team and selected engineering and finance staff of EES on 4 June 2002. The seminar began with an introduction to the theory of economic and financial analysis, a session on “Time Value of Money”, the importance of determining the cash flows from an investment, and the techniques of analyzing and evaluating the cash flows to determine if value is being received. Detailed applications, including the financial analysis of a coal mill replacement project and the financial analysis of a ger district line refurbishment and secure metering project were presented. A participant exercise that required the participants to perform a financial analysis was also conducted. A copy of the capacity building seminar materials is included as Appendix C-2.

It is recommended that the management team require engineers and finance specialists to perform a financial analysis on future projects as a prerequisite to presenting them to management for approval. In fact, to the extent that EES management has authority to determine individual components of the World Bank loan project, it should perform a financial analysis on the various components of that project.

3.9 SUMMARY OF RECOMMENDATIONS

In this chapter there were four specific recommendations made that can be summarized as follows:

- The Company should continue to improve and move toward IAS compliance over the next few years. This would provide several benefits, including the fact that strategic investors place a high importance on financial statements in compliance with IAS.
- The Government of Mongolia should retain the exchange rate risk associated with international loans. It is the only entity in Mongolia that (through the Ministry of Finance and Economy or the Bank of Mongolia) has the expertise and resources to either hedge the risk or bear the potential loss if the Togrog depreciates relative to the other currencies. If this recommendation is accepted, the on-lending agreements should be rewritten to denominate the debt service (interest and principle payments) in Togrog as opposed to the foreign currency.
- The management team should require engineers and finance specialists to perform a financial analysis on future projects as a prerequisite to presenting them to management for approval. In fact, to the extent that EES management has authority

to determine individual components of the World Bank project, it should perform a financial analysis on the various components of that project.

- The finance staff should refine its cost accounting process to enable it to produce estimated costs by the various lines of business.

Each of the above recommendations is documented in Chapter 13.

4. REQUIREMENT TO OPERATE IN A COMMERCIAL ENVIRONMENT

4.1 GENERAL

The reader is reminded that the purpose of this report is to address issues related to Eastern Energy System being able to operate as a commercial entity. Most of the 18 new entities created as a result of the energy sector restructuring have the potential to operate as (marginally) commercial enterprises at approximately a break-even level (no return on equity).

EES, however, operates in a different environment. Although its tariffs are significantly higher than those in the Central Energy System (CES) of Mongolia (as shown in Exhibit 4.1), EES requires a subsidy from the State Budget in order to be financially viable.

Exhibit 4.1 Comparison of EES Tariffs with those in CES

Licensee	Electricity - Entities	Electricity - Households	Heat - Entities	Heat - Households
Eastern Energy System	65 Tg / kWh	60 Tg / kWh	550 Tg/ M^3	250 Tg/ M^2
Central Energy System	47 Tg / kWh	47 Tg / kWh		
UB Heat			170 Tg/ M^3	160 Tg/ M^2
Darkhan Heat			182 Tg/ M^3	160 Tg/ M^2
Erdenet Heat			210 Tg/ M^3	170 Tg/ M^2
Baganuur Heat			267 Tg/ M^3	160 Tg/ M^2

EES is in a similar position to many small, isolated electrical systems around the world. In order to provide power at a price the households and entities can afford, a subsidy is required. The issue has to do with the manner in which the subsidy amount is determined and "delivered".

4.2 EFFECTIVE SUBSIDIES

The dictionary defines a Subsidy in general as "a grant or gift of money". In the context of Governments, a subsidy is "a grant by the government to a private person or company to assist an enterprise deemed advantageous to the public".

From a pure theoretical economics point of view, subsidies should not be necessary. From a practical and social responsibility point of view, however, they are needed and should be considered by regulators as a fact of life. The important thing is for regulators to make sure they are effective. Effective subsidies generally are:

Quantifiable

In order to make informed decisions, the regulator, the Government, and customers must be able to determine the amount of the subsidy. If a subsidy cannot be quantified, none of the parties know what they are dealing with and the other criteria discussed below cannot be met.

Transparent

Once a subsidy can be quantified, it is possible to make it transparent. Transparency starts with the process of determining the revenue requirement (amount of revenue needed to cover all reasonable costs) in a manner that all parties to the process can understand.

Formally Justified

The responsibility for justification of the need for a subsidy should rest with the government. Having the proposed subsidy being quantified and transparent, means that the justification can be made in a more informed manner.

Targeted

Effective subsidies must be delivered to the intended recipients. In the case of subsidies intended for poor customers for example, if there is a social service agency that has identified the people in need, the task is made easier. If the government is the entity that is requiring the subsidy and it can be convinced to deliver it directly to the intended recipients, then this is the most effective method. Alternatively, the government can transfer money to suppliers in order to reduce the price charged to all customers. In addition, one class of customers can subsidize another class (cross subsidy).

4.3 SUBSIDIES FOR EASTERN ELECTRICITY SYSTEM

In the case of EES, two types of subsidies exist. The first is a cross subsidy from the electricity customers to heat customers. This subsidy exists throughout Mongolia and, in fact, exists in almost all energy systems that provide both electricity and heat. Cross subsidies will probably always exist in Mongolia since the GOM wishes, for political purposes, to keep heat tariffs below the cost to provide the service. Cross subsidy decisions are up to the Government and the Energy Regulatory Authority. See Section 9.2 for a discussion of the cross subsidy included in current tariffs.

The other subsidy in the case of EES relates to the fact that the Government of Mongolia has decided that the customers of EES (Households and Entities) cannot afford to pay the full cost of providing service to them. This is due to the fact that EES is a small, isolated energy supplier with higher costs than larger, integrated energy systems such as CES. This situation is common in many countries, including developed countries. In fact, EES is similar in many respects to rural electric entities in many countries. In July 2002, the ERA increased the tariffs of EES to the full cost of service level since the Government of Mongolia had not given EES its 2002 subsidy yet. Political pressure was so great that the Ministry of Finance and Economy finally approved a subsidy and the tariffs were reduced to those shown in Exhibit 4.1. At the new tariffs, however, a subsidy equal to 10% of costs is still required.

The decision to grant a subsidy has, therefore, already been made by the Government of Mongolia. The issues to be addressed now are:

- The manner in which the amount of subsidy is determined
- How the subsidy is “Delivered”

The subsidy depends on (1) the costs of providing electricity and heat and (2) the tariffs paid by customers. Therefore, the costs of EES must first be determined and then reviewed for reasonableness. The logical organization to make this determination is the Energy Regulatory Authority, since they have expertise in the energy sector and are already performing this function in order to determine tariffs. The next step is to determine the tariffs that would be required to recover the cost. Assuming the full cost tariffs are too high for customers to afford, lower tariffs need to be developed. The subsidy is, therefore, the difference between the full costs and the costs allowed in tariffs.

If the amount of the subsidy is determined in an open manner as described above, it will achieve the objectives of being:

- Quantifiable
- Transparent
- Formally Justified

The other objective of an effective subsidy is for it to be targeted. In an ideal situation, the subsidy would be delivered from the Government directly to those households and entities most in need of a subsidy. For practical reasons, however, it is most efficient to provide the subsidy to EES.

4.4 RATIONALIZING THE TARIFF AND SUBSIDY PROCESS

Since the energy system of Mongolia has been restructured, the process for determining tariffs and subsidies must also be revised in the case of those Licensees (Eastern Energy System, Western Energy System, etc.) for whom the Government of Mongolia has determined that a subsidy is required in order to have tariffs that the customers can afford. The important thing is to have an efficient, effective, and transparent process that is fair to all concerned.

The participants in the process include:

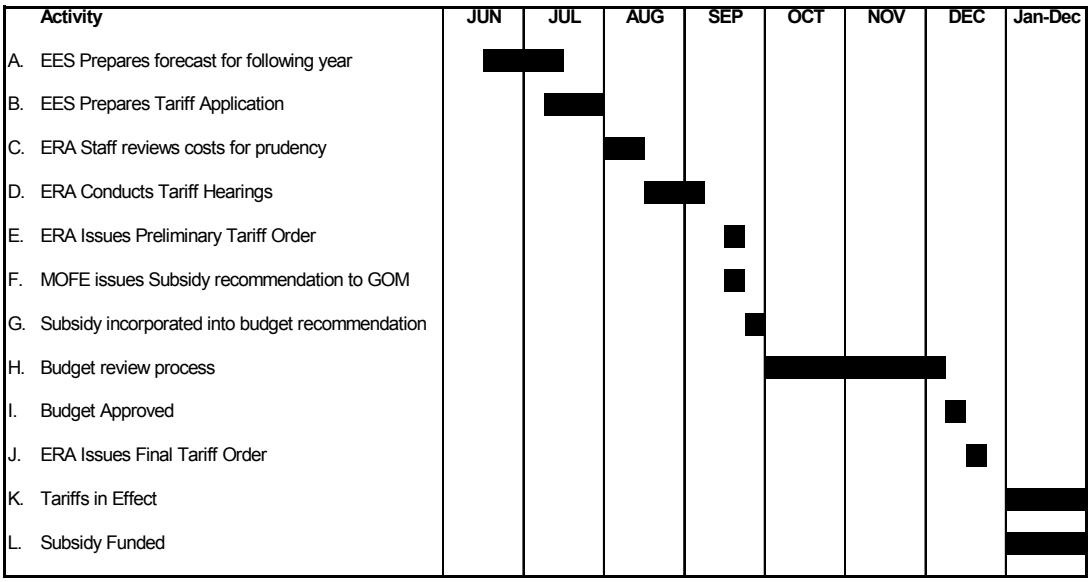
- EES, with the mandate from the GOM to operate in a commercial manner
- The Energy Regulatory Authority (ERA) with the mandate from the GOM to balance and protect the interests of consumers and licensees
- The Ministry of Finance and Economy (MOFE) with the mandate from the GOM to review and recommend Budget elements for approval by the Ikh Hural.

A proposed Tariff and Subsidy Approval Process has been developed in order to rationalize the manner in which EES (and the other licensees requiring subsidies) prices and subsidies are determined, approved, and delivered. The intent is to preclude the gridlock that occurred during the summer and fall of 2002 as tariffs and subsidies were being decided upon. The proposed process includes the following ingredients:

- EES prepares a forecast for the following year of revenues and expenses as well as proposed tariffs and submits the information to the ERA
- The ERA staff reviews the forecast for prudency and the ERA Board conducts hearings at which time MOFE participates as a party to the hearings.
- ERA produces a preliminary tariff order and MOFE submits its recommendation for the subsidy amount as a proposed budget expenditure.
- After the budget is approved (in December), the ERA issues a final tariff order that produces tariffs equal to prudent costs less the approved budget subsidy.
- The subsidy is funded on a monthly basis during the following year.

Appendix D contains a description of the proposed process and the activities and participants involved. Exhibit 4.2 displays the proposed process as a series of activities over time.

Exhibit 4.2 Proposed Tariff and Subsidy Approval Process



The activities are outlined in Exhibit 4.3 showing the components and the participants in the process.

Exhibit 4.3 Activities Required for Tariff and Subsidy Approval

Activity Description		Components
A.	Forecast for the following year	1 Forecasted sales of Electricity and heat for each class of Customer
		2 Forecast of operating costs by component (fuel, salaries, materials, etc)
		3 Operating costs separated by electricity and heat
		4 Interest expense
		5 Set of forecasted financial statements showing revenue at existing tariffs
B.	Tariff Application	1 Complete detailed Forecast (From A)
		2 Proposed Tariffs for each customer class
		3 Proposed Subsidy
		4 Deliver to ERA and Ministry of Finance and Economy
C.	ERA Staff Review	1 Review all elements of forecast for reasobleness and prudence
		2 Prepare a report to the ERA Board, MOFE, EES, and interested parties
		3 Include recommendation on reasobleness of forecast
		4 Include recommendation on tariffs for each class of customer
D.	Tariff Hearings	1 ERA holds open hearings - EES, MOFE, and other parties participate
		2 EES Presents its position
		3 ERA Staff presents its report
		4 MOFE presents its recommendation on amount of subsidy
E.	ERA Preliminary Tariff Order	1 Tariff order issued considering input of all parties
		2 Tariffs equal to prudent costs less subsidy proposal
F.	MOFE Subsidy Recommendation	1 Formal submission of subsidy request to the GOM
G.	Subsidy incorporated into budget submission	1 Specific line item for approval (to be funded quarterly in cash)
H.	Budget Review Process	1 All parties (EES, ERA, MOFE) available to answer questions
I.	Budget Approved	1 Amount of subsidy now finalized
J.	ERA Issues Final Tariff Order	1 Final Tariffs equal to prudent costs less approved subsidy
K.	Tariffs in Effect	1 EES begins charging new tariffs effective 01 January
L.	Subsidy Funded	1 Subsidy paid in cash: 1/12 each month

The process was developed based on the expected amount of time required for budget approval. It is recommended that the ERA and MOFE meet to discuss the proposed process and make whatever adjustments are necessary to have an efficient process.

Having such an orderly, transparent process is very important. As discussed in Chapter 3, for the year 2002 the EES Plan showed the need for a subsidy of approximately 800 million Tg. No subsidy was received for the first 10 months. In November, a subsidy of 228 million Tg (the only amount expected for the entire year) was paid by the GOM to EES. This results in a very large loss for EES in 2002. A COMMERCIAL ENTITY CANNOT OPERATE IN SUCH AN ENVIRONMENT.

4.5 TARIFF AND SUBSIDY AMOUNTS FOR 2003

Of course, it is too late to implement the proposed process for the Budget year 2003, given that the State Budget has already been approved by the Ikh Hural. As discussed elsewhere in this report, the addition of the Tsairtmineral zinc mine as a new customer will allow EES to cover a significantly greater amount of its fixed costs, therefore requiring less of a subsidy from the State Budget in future years. According to the forecast, however, a subsidy will still be required for the year 2003 at a lower level than in the past. It is

assumed that the MOFE has submitted an estimate of the EES subsidy for inclusion in the 2003 State Budget. Therefore, the estimate should be revised (if necessary) and plans made to insure that EES actually receives the subsidy on a timely basis.

The MOFE should immediately meet with EES and ERA to determine the amount of subsidy necessary for 2003 given:

- Expected cost levels in 2003 (given an explicit, reasonable assumption about the effects of the additional load of the zinc mine)
- Current tariff levels (since it is assumed that current tariffs will remain in effect for most of 2003)

The resulting subsidy requirement should then be paid to EES on a monthly basis in 2003.

4.6 TARIFF AND SUBSIDY AMOUNTS FOR 2004 AND BEYOND

If the zinc mine operates in 2004 and beyond at sales levels close to the forecasted amounts (see the discussion in Section 8.2) then EES will not require a subsidy from the State Budget. Of course, mining ventures such as this are often risky and estimated production levels are often not reached. In addition, the tariffs that EES charges its customers are significantly higher than those charged in the Central Energy System (see Exhibit 4.1). The ERA and the GOM may decide in the future to lower these tariffs or not increase them as fuel prices, interest on international loans, the depreciation expense related to the new investments, and other costs increase. Therefore, the Tariff and Subsidy Approval process presented here may need to be used for EES in future years and for other licensees (Western Energy Systems and Diesel Aimags, for example). Therefore, timely approval and implementation is necessary.

4.7 SUMMARY OF RECOMMENDATIONS

In order for EES to be able to operate as a commercial enterprise, the tariff and subsidy processes must be rationalized and carried out in an orderly manner. THIS IS A PRIMARY REQUIREMENT THAT MUST BE MET IMMEDIATELY.

Recommendations made in this chapter include:

- The Energy Regulatory Authority and the Ministry of Finance and Economy should agree on the proposed tariff and subsidy proposal, or modify it as required, and implement it.

The above recommendation is documented in Chapter 13.

5. GENERATION

5.1 GENERAL

Generation is a significant process of the Company, producing its "Products" for sale (electricity and heat) and consuming a significant amount of its resources.

In the newly restructured power sector environment, however, this process requires a somewhat different focus. The output measures will gradually become more market oriented and commercialized. For example, quantity and quality of service will be based on customer needs as opposed to the dictates of a government ministry. Efficiency will be measured by cost per unit of output or capacity and managed by the company in order to provide value to the company, as opposed to arbitrary (and often unreasonable) spending restrictions being imposed by various government entities. Also, as the sector and the company move to a more commercial environment, the management team's job becomes more complex.

5.2 OPERATIONAL FACILITIES

The Power Station is the Combined Heat and Power (CHP) type, producing electricity and heat in a combined cycle. In 1969 3 boilers designed to produce 35 tons per hour of superheated steam and 2 turbines with a capacity of 6 MW each were installed. In 1980, 3 additional boilers designed to produce 75 tons per hour were installed along with 2 turbines with a capacity of 12 MW each. This resulted in a total power station capacity of 36 MW and 163 Gcal per hour of heat. The peak electrical load reached in 2001 was 12.5 MW. The power station burns coal (lignite) acquired from the Aduunchuluun Mine, located 7 km from the power station with a heating value of approximately 2,200 to 2,300 kcal/kg. In addition, the power station has two 2,500 kW diesel generators that can be used for emergency and black start purposes.

During the year 2001, the power station produced net electrical output of 35.5 GWh of electricity and 148.2 thousand Gcal of heat and hot water. Based on its rated capacity of 36 MW, the power station achieved a capacity factor of 11.2% in 2001. Even if the zinc mine reaches its full estimated production level requiring 15 GWh per year, the capacity factor of the power station would only reach 16%, assuming the same level of other sales. This is very low, even considering that EES is an isolated system. For comparison, UB Power Station #4, the largest and most efficient generator in the Central Electricity System, achieved a capacity factor of approximately 41% in 2001.

The electricity produced is provided at 110,000 and 35,000 volts to the Eastern transmission grid, serving the Dornod and Sukhbaatar Aimags and the major cities of Choibalsan and Baruun Urt. Hot water is provided in the winter for district heating and year around for general hot water needs of businesses and households.

5.3 REFURBISHMENT INITIATIVES

In the Eastern Energy System, the situation was quite bleak as recently as the mid 1990s. While the system currently has electricity 24 hours a day and 7 days a week that has not always been the case. Significant problems were encountered including:

- Obtaining replacement parts from foreign sources

- Tariffs far below the cost to produce electricity and heat resulting in a lack of operating and maintenance funds

That resulted in the power station not being able to supply sufficient amounts of electricity and heat. The situation began deteriorating in the early 1990s as the effects of the lack of support from the former Soviet Union in terms of financial resources, parts availability, etc. began to hurt the sector. That is reflected in the operational information shown in the exhibits below. The situation was further aggravated by the fact that significant load was lost due to closure of many inefficient industrial facilities, military facilities, and the general decline of the overall economy.

Power Stations operate most efficiently when loaded close to full capacity, assuming proper levels of maintenance. As the load dropped due to the declining national economic situation and financial resources, spare parts, and equipment became scarce, the performance of the power station suffered in many respects.

5.3.1 Phase I Refurbishment

In the late 1990s a refurbishment of the power station began financed with a soft loan of 15 million DM from KfW. The refurbishment work included:

- Replacement of all pressure parts of Boilers 4, 5, and 6 (the larger 75 ton per hour boilers) including the water walls, economizers, and superheaters
- New burners in the boilers
- Repair of the combustion air and flue gas systems
- New instrumentation and control system
- Repairs on Turbines 3 and 4 (the larger 12 MW turbines)
- Structural, insulation, and piping and valve replacements where necessary
- Repair work on Boiler 3 (one of the older 35 ton per hour boilers)

As a result of this work being completed, the availability of the power station has improved significantly. Power outages due to problems at the power station have been eliminated. The integrity of the turbines has been increased, reducing the probability of significant damage due to mechanical failure. Efficiency in terms of fuel rates and reduction of station use are also expected to improve.

5.3.2 Phase II Refurbishment

The second stage of the refurbishment work is currently underway. This phase is also being financed with a soft loan from KfW in the amount of 6 million DM. The work consists of the following primary elements:

- Installation of a new water treatment plant
- New feedwater tanks, pumps and valves
- Rehabilitation of the oil pumping station
- New ash settling basin
- Instrumentation and control parts
- Replacement of a portion of the fire protection system

As a result of this work, the water chemistry will be significantly improved, resulting in less corrosion of component parts of the boilers and turbines, availability of the power station is expected to be improved due to minimizing down time of the oil pumping station, and working and safety conditions will be improved significantly.

5.4 REVIEW OF OPERATIONS

The best way to convey the operating information is through the following series of Exhibits. They display information for each year from 1990 through 2001 as well as for the first three quarters of 2002 (denoted 3Q2002).

Exhibit 5.1 Net Electricity Output

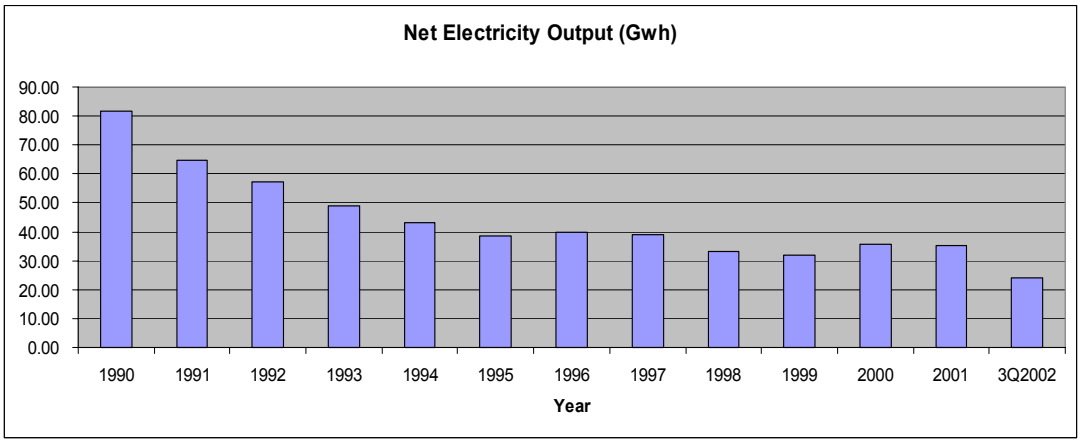
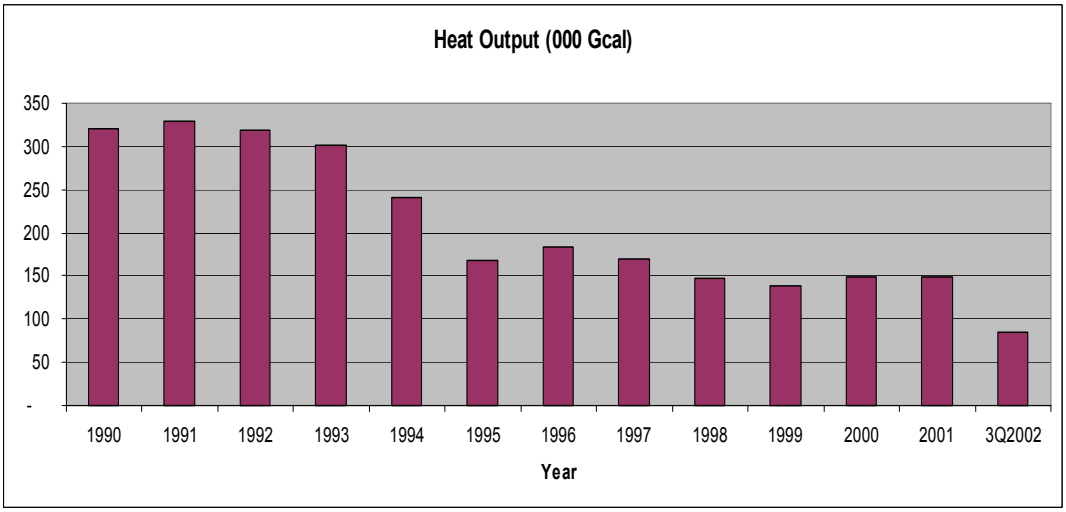


Exhibit 5.1 shows the decline in electricity output (net of station use) which is primarily due to the decline in customer demand and partially due to the fact that the power station could not provide sufficient output to meet even the reduced load due to the financial and technical operational problems.

Exhibit 5.2 Heat Output



Heat output declined significantly since the early 1990s due to the closure of the military base and associated living facilities, loss of businesses in Choibalsan, and the abandonment of portions of the heat system due to loss of population.

The following Exhibits highlight key performance measures of efficiency:

Exhibit 5.3 Electric Fuel Rate

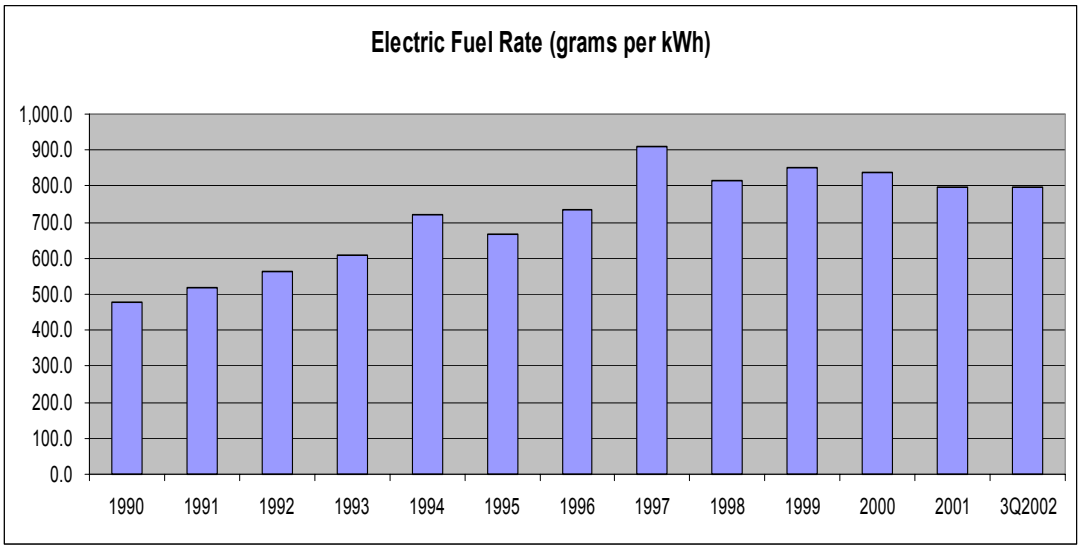


Exhibit 5.4 Heat Fuel Rate

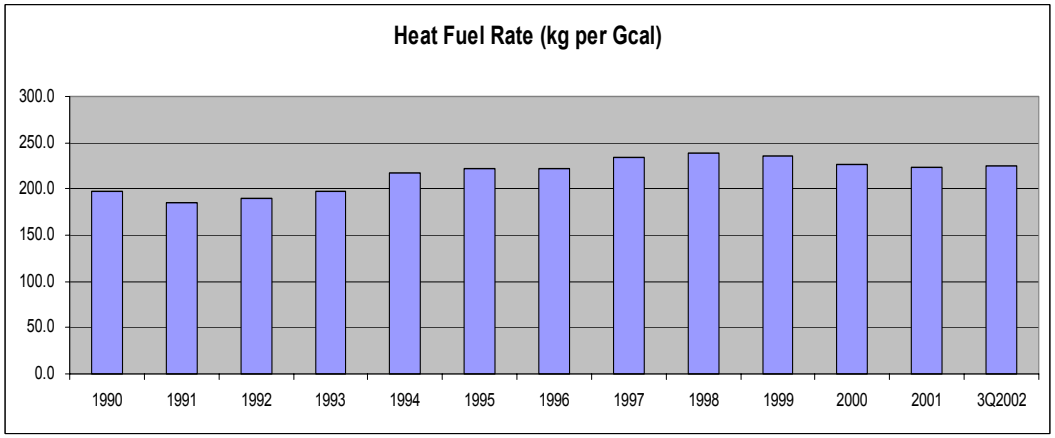


Exhibit 5.5 Mazut Utilized

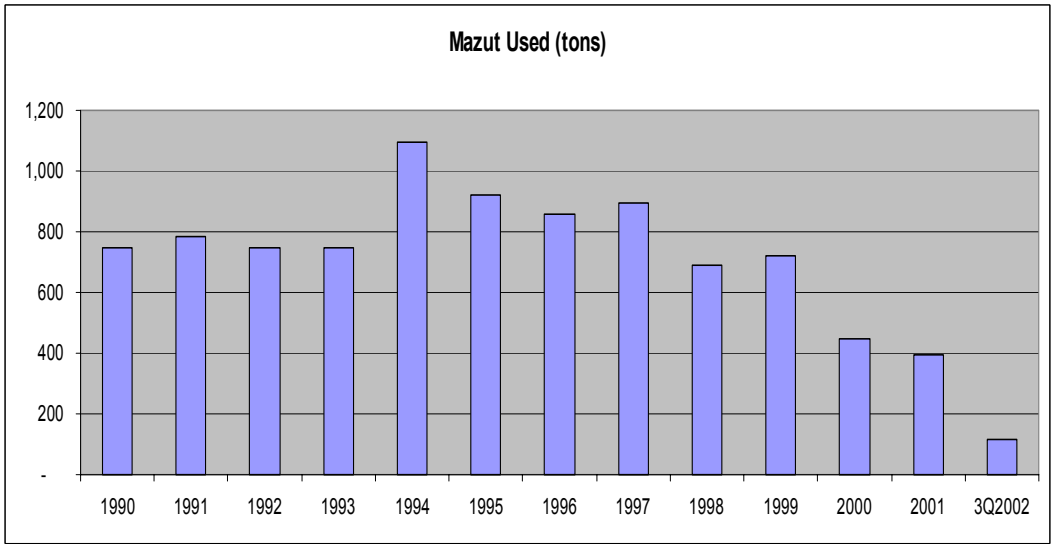
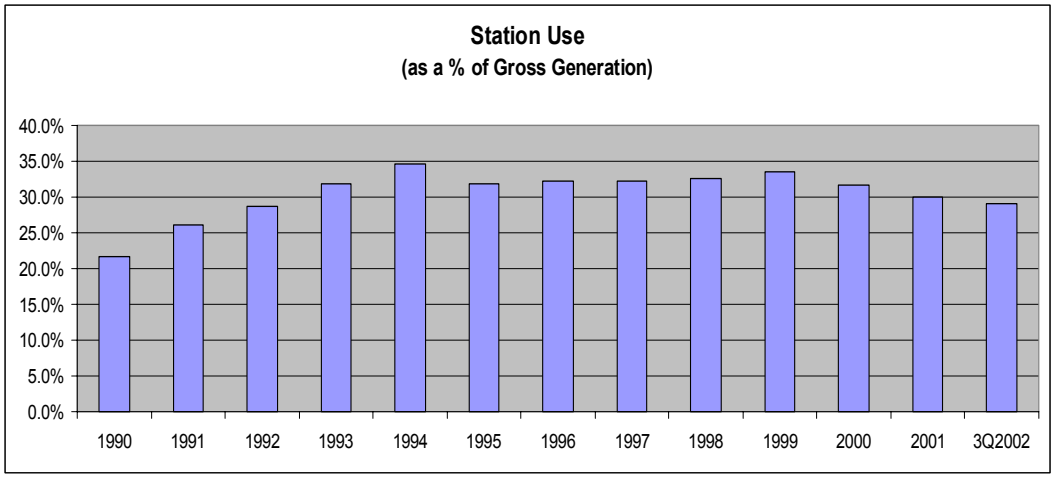


Exhibit 5.6 Station Use of Electricity



The "Electric Fuel Rate" shown in Exhibit 5.3 is a measure of the efficiency of a combined heat and power station in utilizing fuel to produce electricity. It is similar to the measure of "Heat Rate" used for a conventional condensing power station. "Heat Fuel Rate" (Exhibit 5.4) is likewise a measure of the efficiency of a combined heat and power station in utilizing fuel to produce heat output. These two measures are needed to recognize that the two "products" of heat and electricity are produced in a combined process and rely on engineering estimates and allocations of the fuel used in the power station. The objective of the power station operator is, obviously, to minimize the amount of fuel needed to produce the output. Small improvements in the fuel rate produce significant cost reductions, benefiting the Company and its customers.

The electric fuel rate deteriorated during most of the 1990s due to the lower level of output and the poor performance of the equipment. It has improved slightly due to increased operating levels of the power station and the rehabilitation work completed during Phase 1. It is expected to show additional improvement as the Phase 2 work is completed.

The management team must take advantage of the increasing levels of output and the benefits gained from the refurbishment projects. In addition, operation and maintenance practices must focus on achieving improved fuel rates in the coming years. It is recommended that the management team set tough but realistic improvement targets for these measures for future years given the rehabilitation work performed as well as a review of operating and maintenance practices. Once the rehabilitation work is completed, sufficient resources must be devoted to periodic maintenance to prevent a recurrence of the situation in the mid 1990s. As discussed in Chapter 9, it is also recommended that the Company develop and propose an incentive mechanism to ERA in order that it has additional incentive to achieve the targets.

The amount of mazut used has declined significantly as shown in Exhibit 5.5. This is due to several factors including:

- Innovative operating practices developed in recent years to enable boilers to be started using a significantly lower percentage of mazut in relation to pulverized coal
- The rehabilitation of several boilers

The management team should continue to effectively utilize this costly fuel in the future.

The final key performance measure (highlighted in Exhibit 5.6) is Station Use. The objective is, obviously, to minimize the amount of electricity needed to operate plant components such as pumps, motors, the fuel handling system, etc. Small improvements in this measure produce significant savings. Performance on this measure has been improving in recent years due to refurbishment work, primarily on the boilers, although at the 30% level of station use, there is plenty of room for improvement. In addition, as the power station increases output in future years, station use, as a percent of gross generation should decline. Operation and maintenance practices must focus on achieving improvements on this measure. It is recommended that the management team set tough but realistic improvement targets for station use for future years given the rehabilitation work and increasing loads. As discussed in Chapter 9, it is also recommended that the Company develop and propose an incentive mechanism to ERA in order that it has additional incentive to achieve the targets.

5.5 SUMMARY OF RECOMMENDATIONS

This chapter has focused on power station main operations from a business perspective. The Company has faced significant obstacles and operational problems in the past 10 years. Some of those conditions have improved with financial and technical assistance from donors and the management team has made and continues to make improvements. Progress must continue, however, and there are significant improvements expected over the next few years. In addition to outside assistance, management and employees must strive for continuous improvement. Recommendations made in this chapter include:

- The management team must set tough but realistic improvement targets for the Key Performance Measures of:
  - Electric Fuel Rate
  - Heat Fuel Rate
  - Mazut Utilization
  - Station Use
- The Management team must take advantage of the refurbishment efforts in the most optimal manner from an operational and financial perspective to realize improvements on the Key Performance Measures
- Once the rehabilitation work is completed, sufficient resources must be devoted to periodic maintenance to prevent a recurrence of the situation in the 1990s.
- The Company should develop and propose an incentive mechanism to ERA in order that it has additional incentive to achieve the targets.

Each of the above recommendations is documented in Chapter 13.

6. TRANSMISSION AND DISTRIBUTION OF ELECTRICITY

6.1 GENERAL

The Transmission facilities of the Company include the following major components:

- A 110 KV line from the power station in Choibalsan to Baruun-Urt (185 km) serving the Sukhbaatar Aimag. Sukhbaatar Aimag Energy Office then resells to Baruun-Urt, Uul-Buyan, Khalzan, and Asgat.
- A 110/35/10 KV transformer (6 MVA)
- A 110/35/6 KV transformer (10 MVA)
- Three 35/10 KV transformers with a capacity of 12 MVA
- Seven 35/6 KV transformers with a capacity of 15 MVA
- 153 km of 35 KV lines
- 402 km of 6 & 10 KV lines (including 114 km of underground cable)

The Distribution facilities owned by EES are primarily located near Choibalsan City. Three of the soums in Dornod Aimag (Choibalsan, Bulgan, and Buyan Tumen) are served as wholesale customers. Major components of the distribution system include:

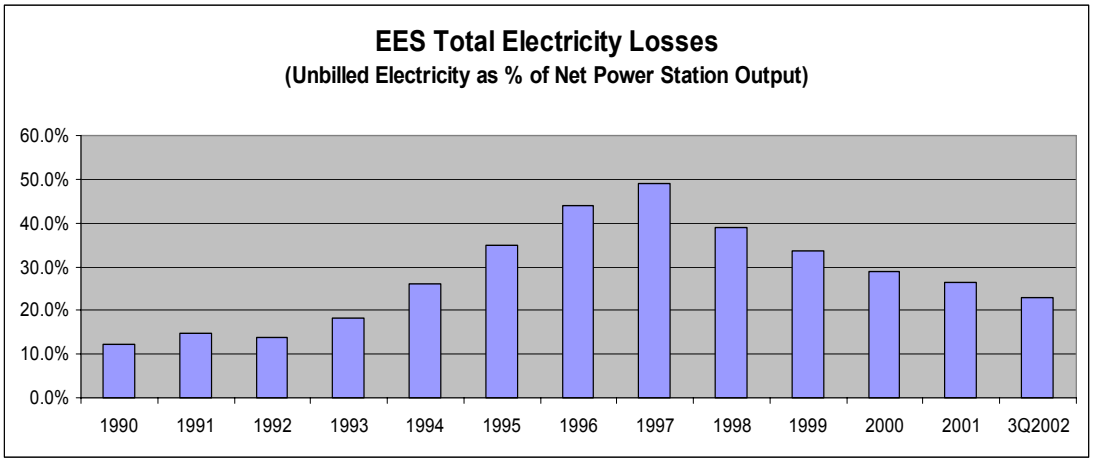
- Six 10/0.4 KV transformers with a capacity of 1.5 MVA
- One hundred seventeen 6/0.4 KV transformers with a capacity of 61 MVA
- 104 km of 400 volt lines (including 61 km of underground cable)
- 82 km of 220 volt lines

6.2 TECHNICAL AND COMMERCIAL LOSSES

6.2.1 Overall losses

As a starting point for the analysis of losses, it is interesting to look at the total losses on the electrical system. Exhibit 6.1 displays the history since 1990 of the total losses on the electrical system (power station net output less billed sales) as a percent of the net output from the power station.

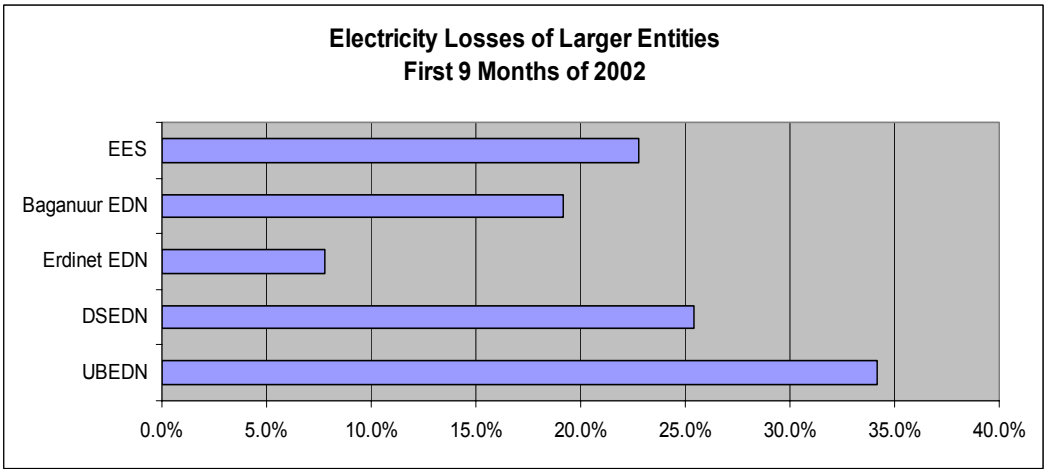
Exhibit 6.1 Total Electrical Losses



The reader can see the growth in losses through 1997 due to technical losses caused by the significant reduction of customer base and deterioration of equipment and to commercial losses caused by metering problems (lack of meters and inaccurate meters), theft, and billing problems. The low level of losses in the early 1990s may be artificial due to the fact that a high percentage of kWh sales were estimated at that time, potentially understating the losses.

It may be helpful to compare the losses of EES to those of other energy sector entities in Mongolia. Information was obtained on loss percentages for the first nine months of 2002 from a variety of entities. Since EES is one of the larger entities in the power sector, its losses are compared to the larger Electricity Distribution Licensees in Exhibit 6.2

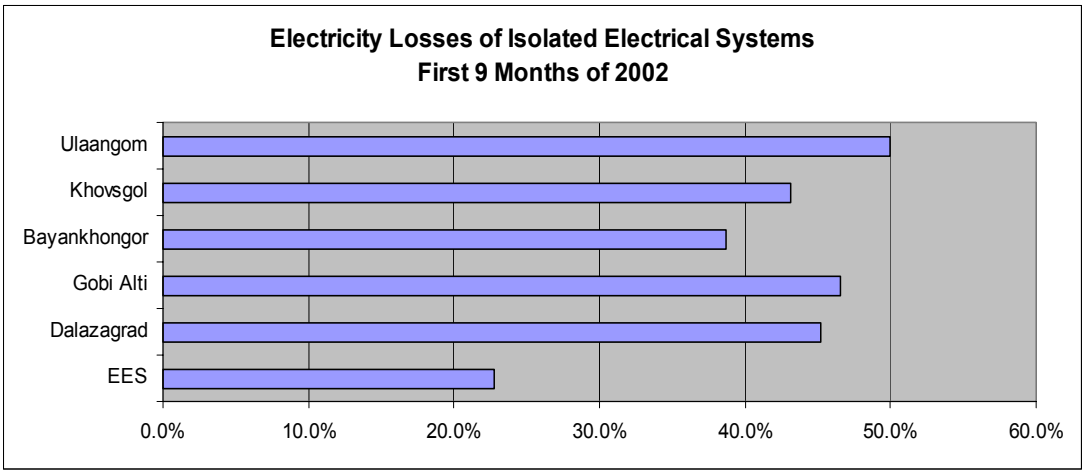
Exhibit 6.2 Losses of the Larger Electric Distribution Entities



The losses of EES, of course, contain transmission losses which the other entities do not experience since they buy from the Transmission Licensee in the Central Energy System. Baganuur and Erdenet have the advantage of having a high percentage of their sales to single customers (the Baganuur Mine and Erdenet Copper, respectively) at higher voltages. Overall, EES compares favorably to these entities.

It may also be helpful to compare the losses of EES to those of other isolated energy sector entities in Mongolia. Information was obtained on loss percentages for the first nine months of 2002 from a variety of entities. EES losses are compared to the isolated systems in Exhibit 6.3

Exhibit 6.3 Electricity Losses of Isolated Systems

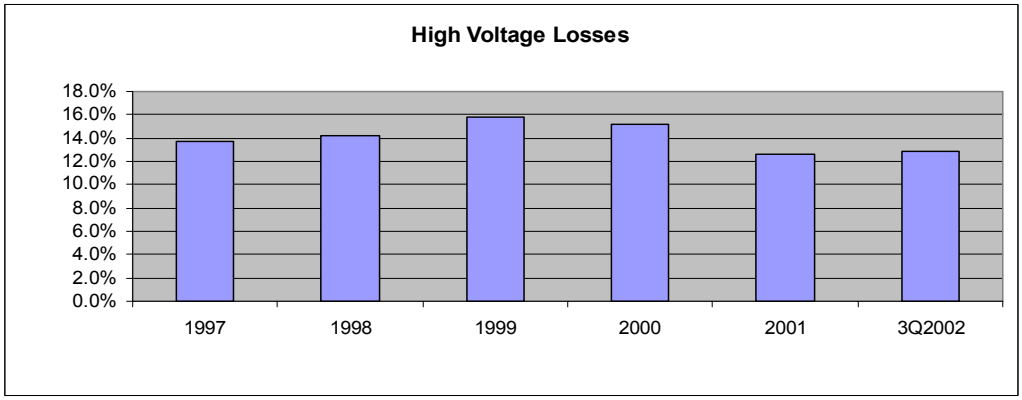


Although EES has many advantages over most of these systems in terms of size, its results are still quite impressive. Of course, all these systems have a long way to go in terms of loss reduction.

6.2.2 Transmission System

The transmission system is experiencing a significantly high percentage of technical losses. This is primarily due to the very low loading level of facilities as compared to design specifications. The 110 KV line to Sukhbaatar Aimag was recently completed (in 2000) and has a capacity of 20 MVA but is currently loaded at approximately 3 MVA. This results in losses as a percent of power flows being higher than normal. The addition of the zinc mine load will result in more efficient loading of this line. Other transmission lines and transformers are currently under loaded as well due to closure of the military base and industrial facilities as well as population reduction. Exhibit 6.4 displays the high voltage losses from 1997 through the third quarter of 2002.

Exhibit 6.4 High Voltage Losses



In order to reduce these losses, EES should perform proper maintenance and strive to attract new customers in order to better utilize the facilities.

6.2.3 Distribution System

Technical losses on the system are due primarily to the fact that the lines and transformers are loaded significantly below their design specifications and secondarily to the fact that the equipment (conductors and hardware) are in poor condition due to lack of maintenance. Reduction of these losses requires funds for replacement, reconfiguration, and refurbishment. The Company has very limited funds, however, some transformers have been replaced with lower capacity ones and a limited amount of line refurbishment has been done. Reconfiguration of some circuits has been done in those areas with a significant drop in population, especially on the fringes of Choibalsan City where people have been leaving to move closer to the center. Significant future reduction in technical losses will have to be accomplished using funds from the World Bank loan, discussed in Section 6.3.

Commercial losses at EES are primarily due to the following:

- Lack of metering for approximately 600 households (approximately 8% of the total)
- Inaccurate metering devices
- Meters that are not secured, providing the opportunity for jumpering or other forms of tampering
- Conductors, primarily in ger districts, that are not insulated and are strung too low, allowing customers to tap in (hook) illegally
- Other forms of theft

Readers may wonder why inaccurate meter reading and billing are not included on the list. The reason is that the Company has quite a good system for quality control in reading meters and billing customers. See Chapter 10 for a discussion of the billing process.

Accurate, secure meters are a key ingredient in keeping commercial losses under control. The tradition of the customers owning their meters should definitely be discontinued. In a commercial environment, the supplier must be assured that the device used to record sales and bill the customer is accurate and tamper proof. That objective cannot be accomplished if the customer owns the meter. The Energy Law of Mongolia states that the supplier should provide the meter, however, no action to accomplish this has been taken to date. Since the concept of meter ownership by the customer is so pervasive throughout Mongolia, any change should be initiated by the Energy Regulatory Authority (ERA). It is recommended that ERA issue an order to the retail licensees requiring compliance with the Electricity Law. The order should state that each Licensee is to develop a plan to own and maintain all meters by 2007 and to implement the plan in stages. Such a program would require a significant investment on the part of the Distribution Licensees, but is essential to the future of the energy sector in a commercial environment. A 5-year transition will help to ease the burden as well as assurance by ERA that the cost will be included in tariffs.

Having meters properly secured is also important to reduce tampering and jumpering (actually forms of theft) by customers. EES recognizes the importance of this and has been utilizing its own limited funds in both apartment buildings and ger districts. All entity meters are now in secure boxes and the majority of single floor dwellings have secure meters. Of the 52 apartment buildings with 2 or more floors, approximately 25 now have secure meters. Many other meters in apartment blocks have been checked and sealed.

Approximately 300 of the 3,600 ger district meters are now in secure cabinets, a small percent of the total but a step in the right direction given limited Company funds.

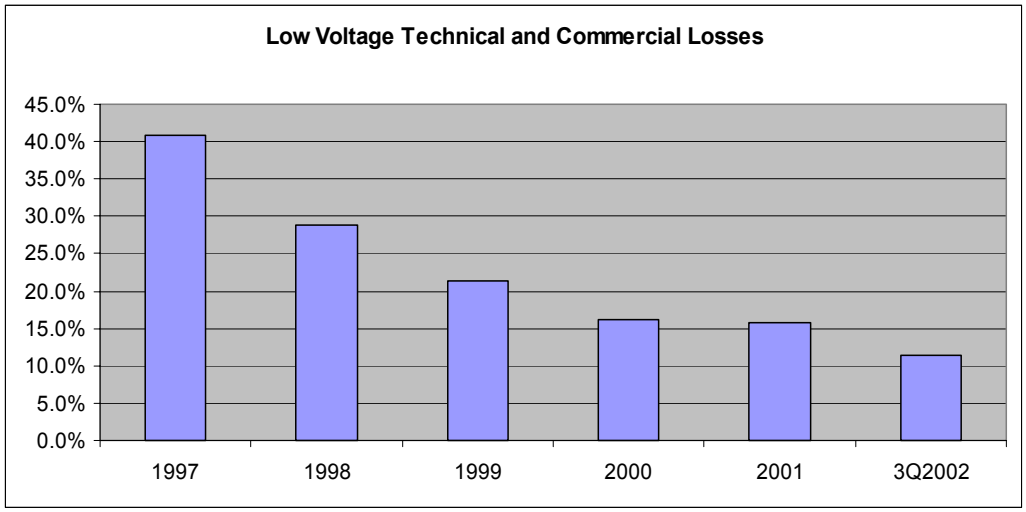
Low strung, uninsulated service wires, especially in ger districts, are a problem since they provide the opportunity to make illegal connections. Some progress has been made in reconfiguring and raising these wires using limited EES funds. More efforts are needed in this area. Additional funds for this initiative are included in the World Bank loan commitment. See Attachment B-13 for a description of the recent measures taken to reduce technical and commercial losses.

Other measures to reduce theft are also important. EES has devoted significant effort and resources to improving the situation. The objective is to bill for all electricity leaving the distribution transformer (except for a small amount of technical loss in the 220 volt lines). As discussed in Chapter 10, the Company has a program of monitoring the electricity leaving each substation and comparing that to the amount of electricity billed to customers fed from that substation each month. This provides a good monitoring tool for management follow up.

Illegal taps by customers are also of concern to the Company. EES has utilized policemen on a contract basis to check for illegal taps, especially at night. This has produced some positive results.

Distribution losses over time are shown in Exhibit 6.5.

Exhibit 6.5 Distribution Losses



Significant progress has been made in distribution loss reduction. It is encouraging to see that the Company is devoting significant effort to this task. The Company should be congratulated for its efforts to date to achieve progress on loss reduction with its own limited funds and in planning to effectively utilize the funds to be made available under the World Bank loan. The job of controlling losses is never completed. Constant monitoring and enforcement is required and EES must continue to strengthen its efforts in this area.

6.3 THE WORLD BANK LOAN

The World Bank loan commitment includes a 1 million US Dollar component for electricity system rehabilitation at EES. The objective is to improve reliability and reduce losses. Major components of this loan include:

- Utility-controlled meters, meter boxes, and connection materials for entities and apartment complexes
- Reconfiguration and reconductoring of various low voltage lines
- Rationalization and replacement where necessary of transformers to better match loads
- Switchgear for some transformer stations
- Chemical treatment of wood poles

It is interesting to note that the Company is already pursuing some of these initiatives with its own funds. In addition, it has been monitoring loads on various lines and transformers in order to identify the facilities that are loaded far below design specifications and in most need of replacement to reduce technical losses. This is a very positive initiative on the part of EES Management.

6.4 SUMMARY OF RECOMMENDATIONS

Recommendations made in this chapter include:

- The Company should utilize the financial analysis techniques learned and perform a financial analysis on the various components of the World Bank project to ensure that maximum value is received.
- Once the distribution system refurbishment is completed, management must devote sufficient resources to periodic maintenance to prevent a recurrence of the severe deterioration of the facilities.
- EES should continue to achieve reduction in losses through the programs in place and by finding new and innovative methods to address the problem.
- The ERA should issue an order to have all meters owned and maintained by the Distribution Companies over a set period of time of approximately 5 years.
- EES should continue to achieve reduction in losses and effectively utilize the funds available from the World Bank loan to realize improvements on loss reduction.

Each of the above recommendations is documented in Chapter 13.

7. HEAT DISTRIBUTION

7.1 GENERAL

The power station produces hot water for heating during the winter and for general hot water use year around. The send out from the station to the heat system is at 130°C with a return temperature of 70°C. The power station can produce 69 Gcal/hr, although the connected capacity of heat customers is now only 39 Gcal/hr. In prior years the annual output was in excess of 300,000 Gcal, but in recent periods has only reached 150,000 Gcal.

Distribution Facilities include the following:

- Main line #1: 2,983 parallel meters (built in 1969 and 73-84)
- Main Line #2: 3,969 parallel meters (built in 1989)
- Main line #3: 2,530 parallel meters (built in 1969)
- Total lines: 17,400 parallel meters (including the 3 main lines above)

Over the years, some lines have been abandoned due to the loss of customers, including the loss of the military base and associated housing. The system is in poor condition due to lack of funds for maintenance over the years. For example, 1,900 meters of line (3,600 sq meters) need insulation and 13,508 sq meters of covering over the insulation is needed. The losses on the system are estimated at approximately 30%. For this reason, approximately 1.1 million US Dollars is being committed as part of the World Bank loan (described in Section 3.3.3) for heat distribution system rehabilitation with the primary objective of reducing heat losses.

There are 200 heat customers at the present time. All households are considered as one customer since EES sells heat for all apartment blocks to one customer, the Housing Authority. Meters are installed for 28 of the larger customers (entities), while the smaller customers pay based on the cubic meter volume of the structure receiving heat service.

The heat distribution business has been operating at a significant loss for many years. For the year 2001 (see Section 3.3) the cost related to heat was 1,037 million Tg and the revenues were 591 million Tg, covering only 57% of costs. The recent tariff increase, averaging 85% for heat customers, will bring revenues up to a level to approximately cover costs.

7.2 INITIATIVES TO PURSUE

With the significant heat losses on the system and the need for major refurbishment, EES should focus its efforts on making sure the Company receives maximum benefit from the 1.1 million US Dollar World Bank Heat System Refurbishment Project. It is recommended that the management team require engineers and finance specialists to perform a financial analysis on all future investment projects as a prerequisite to presenting them to management for approval. In fact, to the extent that EES management has authority to determine individual components of the World Bank loan project, it should perform a financial analysis on the various components of the project to ensure that maximum value is received.

Once the heat system is refurbished, management must devote sufficient resources to periodic maintenance to prevent a recurrence of the situation in the 1990s.

7.3 SUMMARY OF RECOMMENDATIONS

Recommendations made in this chapter include:

- The Company should utilize the financial analysis techniques learned and perform a financial analysis on the various components of the World Bank project to ensure that maximum value is received.
- Once the heat system is refurbished, management must devote sufficient resources to periodic maintenance to prevent a recurrence of the situation in the 1990s.

Each of the above recommendations is documented in Chapter 13.

8. SALES AND SERVICE

8.1 GENERAL

In a commercial environment, every business must market and sell its products or services in order to survive. It must also keep its customers happy by providing a high level of service. In the context of EES, this means:

- Having the power station available to produce electricity and heat at the time customers need it
- Minimizing service interruptions to electric and heat customers
- Providing high quality output in terms of voltage and frequency control for electricity and temperature and flow regulation in the case of heat.
- Looking for ways to increase sales over time in order to be able to more effectively absorb fixed costs. This is very critical.

8.2 BENEFITS EXPECTED FROM THE NEW ZINC MINE

The Tsairtmineral zinc mine (a joint Mongolian – Chinese joint venture) is currently being developed in the Sukhbaatar Aimag. As a new major customer, it will allow EES to cover a significantly greater amount of its fixed costs, therefore requiring less of a subsidy from the State Budget in future years. This is an extremely positive development for EES, its customers, and the Mongolian economy in general.

Although the timing is somewhat uncertain, the load requirement of this customer is expected to be 400 KW initially, growing to 1.7 MW at expected full operation. The mine is fed from the 110 KV line from Choibalsan to Baruun-Urt via a 35 KV line and a 35/0.4 KV substation paid for by the mining company. Therefore, no new facility costs will be incurred by EES to serve the load.

The tariff for the mine will be 60 Tg / kWh. Fuel cost is approximately 16 Tg per kWh and, allowing for other incremental operating and maintenance costs, the marginal cost to EES to serve this load is approximately 20Tg / kWh. The margin on these sales is, therefore, 40 Tg / kWh. The load expected during initial startup is expected to be 1.2 million kWh per year, providing EES a 48 million Tg contribution to fixed costs. At estimated full operation in future years the sales are expected to be 15 million kWh, providing a 600 million Tg contribution to fixed costs, an amount almost equal to the current required annual subsidy. The reader is cautioned, however, that mining ventures are quite risky and production levels are often not achieved. Therefore, the EES sales levels to the mine are very uncertain.

8.3 INITIATIVES TO PURSUE

In order provide quality service, the Company must focus on the Generation, Transmission, and Distribution processes. Focusing on the key performance measures will allow it to be available to a maximum extent at a low cost and minimize interruptions while providing quality output in terms of voltage, frequency and temperature control.

In a more competitive environment, suppliers often must compete for customer load, not only with other licensees, but also with options that customers have for self-generation. In the case of large entities, they may be able to self-generate as opposed to purchasing

from EES. The Company must be aggressive, to the extent allowed by law, in retaining and increasing its sales since it has such significant excess capacity.

EES is very fortunate to have the Tsairtmineral zinc mine as a new customer. Benefits include the additional contribution to fixed costs and the reduction in the required State Budget subsidy. The Company must continually seek out new customers that will contribute to its revenue base and improve the economic and employment situation in the community. Providing quality service at a reasonable price is the way to convince businesses to locate in the area.

8.4 SUMMARY OF RECOMMENDATIONS

Recommendations made in this chapter include:

- Continue to seek out new customers to provide load growth and contribute to the economic growth of the area.

The above recommendation is documented in Chapter 13.

9. PRICING

9.1 GENERAL

The company's pricing is subject to approval by the Energy Regulatory Authority (ERA), in accordance with the tariff provisions of the Law of Mongolia on Energy.

The tariff policy basically follows a traditional "Rate of Return" methodology using current costs and output levels. It is structured to allow licensees to recover their Prudent:

- Operating and maintenance costs (including depreciation)
- International Loan Interest
- Return on investment (rate base, including fixed assets and working capital) that allows for recovery of:
  - Interest on short-term loans
  - Return on equity

Therefore, if licensees can control their costs to the levels assumed in their tariff filings, they will have the opportunity to recover all their costs. If the management team takes the initiative to reduce costs, they can achieve higher earnings. In the case of EES, meaningful cost reductions primarily involve reduction of fuel expense (improvement of the "Fuel Rate", and minimization of the amount of mazut) and reduction of technical and commercial losses.

At the present time, the ERA has determined that the return on equity will be limited to no more than 3% and in fact the rate included in the current tariff is zero.

As discussed in Chapter 4, EES requires a subsidy in order to keep tariffs to a level that customers can afford. The tariff procedure is, therefore, more complex since tariffs must be set based on the amount of subsidy from the State Budget. The reader is encouraged to review Chapter 4 in which a new tariff and subsidy approval process is recommended.

A fuel cost adjustment mechanism has been developed for the ERA to utilize in the event that the unit prices for coal or mazut change from those used to establish the tariff.

In October 2002, a Capacity Building Seminar titled "Tariff Issues" was conducted for the management team and finance specialists. The seminar covered basic tariff concepts, the specifics of the Mongolian tariff process, and suggestions to the Company to manage the tariff process. The seminar materials are contained in Appendix C-6.

9.2 TARIFFS FOR 2002

The tariffs finally approved by ERA in the fall of 2002 were developed as follows:

Component	Amount (millions of Tg)
Operation and Maintenance (including Depreciation)	2,747
International Loan Interest	79
Return on Investment:	83

Total Revenue Requirement	2,909
Revenue Requirement to be included in Tariffs	2,685
Revenue Requirement to be covered by Subsidy	224

The return on investment includes only short-term loan interest. There is no return on equity, of course, since the State is expected to provide a subsidy to EES. The amounts were arrived at based on the tariff submission of EES, adjustments made by the staff of the ERA, and the subsidy determined by the Ministry of Finance and Economy. Please note that the above revenue requirement amounts are for a full year at the new tariffs. Since the new tariffs will be in effect for only a portion of the year 2002, the subsidy amount of 224 million Tg is not adequate to cover the loss of EES for the full year of 2002.

The Revenue Requirement (in millions of Tg) was then allocated as follows:

Electricity	1,860	
Heat	1,049	
Total		2,909

The tariffs, however, were designed based on a cross subsidy of approximately 380 million Tg from electricity to heat.

The reader can see from Exhibit 9.1 that the tariffs were increased significantly from the tariffs in effect early in 2002.

Exhibit 9.1 EES Tariff Change in 2002

Customer Class	Old Tariff	New Tariff	Increase
Electricity – Households (Tg/kWh)	45	60	33%
Electricity – Entities (Tg/kWh)	65	65	-
Heat – Households (Tg/m^2)	136	250	83%
Heat – Entities (Tg/m^3)	295	550	86%

9.3 TARIFF ISSUES

The tariffs and associated subsidy are just adequate to provide recovery of costs for a full year of operation. With the return on equity set at zero, EES can expect to have net income of approximately zero. This assumes, however, that the cost levels used to set tariffs are adequate given the levels of operation and that the proper subsidy amount is received from the State Budget.

In addition to the proposed tariff and subsidy approval process recommended in Chapter 4, another enhancement that would improve the tariff process is the introduction of meaningful incentive mechanisms that would reward the company for operational

improvements and cost reduction measures. Possible incentive targets could include items such as:

- Reduction of the Fuel Rates
- Reduction of Station Use
- Reduction of Technical and Commercial Losses

It is recommended that EES develop proposals for one or more incentive mechanisms and make a proposal to ERA for implementation. The mechanisms should be developed by determining a reasonable base level for a particular measure (say fuel rates) using historical data and recent demonstrated levels. If the actual performance over a period of time (say one year) were better by at least a given amount, then the tariff would be increased to provide EES with additional income. If the Company does not achieve the base level, then it would be penalized.

The tariff process is a new experience for all Licensees, including EES. In the newly restructured environment, it is a very critical process that determines, to a large extent, the profitability of the company. Given the fact that EES requires a subsidy, the process is even more critical. The regulatory process of establishing tariffs begins with the Licensee performing a detailed analysis of its operations and costs, using that information to develop a tariff proposal, and presenting the proposal to the regulator with sufficient supporting detail. The "Burden of Proof" in a tariff process is the responsibility of the Licensee. It is the regulator's job to review the proposal for reasonableness, make any necessary adjustments in a reasonable and transparent manner, and set the resulting tariffs. It is recommended that EES devote sufficient time and resources to the tariff process in order to present its position in a detailed, transparent, understandable manner in order to have a successful outcome. The tariff proposal should include documentation of the initiatives that the company is undertaking to improve operations and reduce costs. This will provide the ERA with valuable information to convey to customers, the Government of Mongolia, and the general public as to the level of tariffs and any proposed changes. Additionally, since EES requires a subsidy from the State Budget in order to have tariffs at a level that customers can pay, it is important that the Ministry of Finance and Economy have a good understanding of the situation so they can propose a reasonable subsidy. A recent analysis conducted by a Public Relations Advisor indicated that the public has a perception that the energy sector is not spending money in a cost efficient manner. This perception exists in many countries and it is the responsibility of the Licensees (along with the ERA) to educate the public on actions being taken to operate efficiently and in a cost effective manner.

In future years, tariff increases will be required to cover the increasing interest on international loans and the increased depreciation due to the refurbishment costs being added to fixed assets.

9.4 SUMMARY OF RECOMMENDATIONS

In the area of pricing, the following recommendations were made:

- EES should develop proposals for one or more incentive mechanisms and make a proposal to ERA for implementation.

- EES should devote sufficient time and resources to the tariff process in order to present its position in a detailed, transparent, understandable manner in order to have a successful outcome. The tariff proposal should include documentation of the initiatives that the company is undertaking to improve operations and reduce costs.

- The proposed Tariff and Subsidy Process detailed in Chapter 4 should be implemented.

Each of the above recommendations is documented in Chapter 13.

10. BILLING AND COLLECTION

10.1 THE CUSTOMER BASE

The company has the following classes of customers based on its output products:

- Electricity
  - Sukhbaatar Aimag Energy Office served at wholesale (they then resell to 4 other communities in Sukhbaatar Aimag)
  - Three Soums in Dornod Aimag (Choibalsan, Bulgan, and Buyan Tumen) served at wholesale
  - Entities
  - The Tsairtmineral Zinc Mine (beginning in 2003)
  - Households
- Heat
  - The Choibalsan Public Utility Service Organization, served at wholesale which then resells to all apartments in Choibalsan
  - Entities

Details of those customers are included in Appendix B-8

10.2 ELECTRICITY CUSTOMERS

A Capacity Building Seminar was held for the EES management team in October 2002 titled “Managing Accounts Receivable and Improving Collections”. The seminar covered a variety of business management issues concerning accounts receivable and stressed the need to treat the various classes of customers on an individual basis when dealing with billing and collection issues. The seminar materials are contained in Appendix C-5.

In recent periods, the accounts receivable balance has been averaging approximately 500 million Tg, representing approximately 100 days of sales. Approximately 50% of the balance represents amounts due from wholesale customers and entities and the other half is from households. Given that customers generally take 30 days to pay their bill and that virtually no businesses collect all accounts on a timely basis, the accounts receivable balance in a commercial environment would be expected to average approximately 45 days. This may increase during the heating season given that customers have both a heat and electric bill to pay out of their limited budget. A 45 day balance in Accounts Receivable is, therefore, a reasonable benchmark for the Company to strive for in the long-term. Of course, since EES is currently experiencing more than twice this level, progress will take some time.

One reason that the Accounts Receivable Balance of EES (and all other energy sector entities in Mongolia) is so high is that it contains what may be referred to as “Hopeless” accounts. These would include:

- Bankrupt customers currently receiving service
- Bankrupt customers no longer receiving service (out of business)
- Customers that have died
- Customers that have moved
- Customers that otherwise cannot be located

- Very old amounts due from Budget Organizations such as military and educational facilities.

Under International Accounting Standards, these accounts would be written off so as not to overstate Accounts Receivable (an asset) and understate bad debt expense. In Mongolia, accounts are not generally written off until a court order is issued, which takes a considerable amount of time. Also contributing to the situation is the fact that the accounts are not allowed to be written off for tax purposes prior to a court order. As discussed in Chapter 3, the Company should at least disclose in footnotes to the financial statements the estimated level of these hopeless accounts.

10.2.1 Wholesale Customers

The Sukhbaatar Aimag Energy Office and the 3 soums in Dornod Aimag represent a significant amount of sales. The payment pattern of these customers can be quite sporadic and cause the Accounts Receivable (A/R) balance to rise and fall. Appendix B-9 contains a list of the 25 customers with the highest A/R balances at 30 April 02. The Public Utility in Choibalsan and the Sukhbaatar Aimag Energy office are at the top of the list. These customers present a significant challenge to EES since it is nearly impossible to disconnect these customers for non-payment. In fact, the Aimag Government and the State Government officials put significant political pressure on EES to allow those customers (and certain other customers) to delay payment. This situation should not exist in a commercial environment.

It is recommended that the Government of Mongolia should allow energy sector entities to take more vigorous collection action with Budget Entities and discontinue the practice of having a list of entities it will not allow suppliers to disconnect. In the case of EES, the threat of withholding or delaying the State Budget Subsidy is often used by government officials. That is an abuse of power that should not be allowed in a commercial environment.

10.2.2 Other Entities

Due to the poor economic climate both locally and nationally, business entities have a difficult time meeting their payment obligations. A review of Appendix B-9 indicates several large entities with high levels of A/R. The Company payment terms for these customers allow 10 days for payment after the bill is rendered. If the bill is not paid in 30 days, a notice is sent to the customer. After 45 days, EES threatens to disconnect for non-payment. When possible, EES follows through on the disconnection. There are three categories of customers that explicitly are not allowed to be disconnected – Hospitals, Water Pumping, and the Airport. This is understandable due to the significant public health and safety issues involved. These are all Budget Entities, however, and the government officials must realize that EES is now a commercial entity and budget funds must be allocated to public service agencies so they can pay for electricity in the same manner as other commodities. EES should not subsidize Budget Entities - that is the responsibility of the Government.

As with the Wholesale Customers discussed above, various public officials put pressure on EES to allow State Owned Entities to delay payment for long periods of time. This practice must be discontinued.

The Company is being diligent in monitoring and attempting to collect from these customers and these efforts must be continued. The State and Local Governments must

be encouraged to meet their obligations in order to promote a more commercial environment for EES.

As far as the Tsairtmineral Zinc Mine is concerned, EES must make sure that this new customer realizes that timely payment is required and that vigorous collection action, up to and including disconnection (if necessary) will be taken. If EES and the mine start off on a solid business foundation, collection problems should not occur in the future.

10.2.3 Households

The Company has approximately 7,300 household customers, with 3,700 in Apartments and 3,600 living in ger districts. Almost 600 of those customers do not have meters installed. The objective is, obviously to accurately bill those customers on a monthly basis and collect the amounts billed. Bill writers are responsible for reading each customer's meter on a monthly basis and giving a bill to the customer at that time. Payment terms for households require payment of the bill within 30 days.

In Chapter 6, it was recommended that the tradition of the customers owning their meters should definitely be discontinued. In a commercial environment, EES must be assured that the device used to record sales and bill the customer is accurate and tamper proof. That objective cannot be accomplished if the customer owns the meter. That recommendation is repeated here since it will strengthen the billing process.

EES has a very good quality control mechanism in place to monitor the usage of the customers fed off each circuit (utilizing meters at the substations) and then compare that to the kWh billed by the bill writer each month. That provides management a tool to follow up on each bill writer to see why an amount close to the total send out was not billed. Besides identifying those bill writers that may be understating customer usage, the system also identifies circuits where there may be high technical losses, meter tampering, or other forms of theft. Appendix B-7 contains a summary of the monthly information for the year 2001. The first page shows the results for each meter reader and the percent of electricity they billed for. Page 2 shows the monthly results for two of the meter readers. The incentive compensation of meter readers is based on the billing percentage they achieve. This is a very innovative and progressive program that the Company should continue to use and improve.

Collection of the amounts billed is the next step in this process. Given (1) the poor economic situation of the region, (2) the fact that household tariffs for EES customers are 28% higher than those of customers in the Central Electricity System (60 Tg/kWh vs. 47 Tg/kWh), and (3) the fact that EES customers on average have a much lower income than households in the CES, it is not surprising that collections are a problem. Appendix B-10 displays the age of accounts receivable by meter reader as of 01 May 2002. The information is summarized in Exhibit 10.1

Exhibit 10.1 Age of Household Accounts Receivable

AGE (DAYS)	AMOUNT (000 TG)	PERCENT
0 - 30	19,873	8 %
31 - 60	20,961	8 %
61 – 90	22,880	9 %
91 - 120	31,423	12 %
> 120	163,971	63 %
TOTAL	**259,108**	**100 %**

The extremely high percent of accounts over 120 days illustrates the issue of "Hopeless" accounts discussed earlier. The first step the Company should take is to identify the hopeless accounts and then deal with the remainder. That is not to say that the Company should not take all reasonable measures to collect hopeless accounts, but it should concentrate its primary efforts on those accounts that have a higher probability of collection.

The ERA is developing an "Electricity Consumption Rule" that will, among other things, specify the rights of Customers and Licensees as far as disconnection for non-payment is concerned. EES should make sure that it exercises its rights to take all collection measures allowed.

The Company should recognize that many customers simply do not have the cash to pay all their arrears at once. By working with the customer to pay some of the arrears immediately and the balance over a period of time, the interests of both the customer and the Company are satisfied. Once customers know the Company is serious about disconnection and see their neighbors being disconnected, they generally pay on a more timely basis.

Low-income customers present a challenge to electricity suppliers in all countries, including the most developed ones. A Capacity Building Seminar, "Addressing the Needs of Low Income Customers", was held for the EES management team to discuss issues related to low income customers and potential ways to address those issues. Appendix C-4 contains the seminar materials. The same material was discussed previously with the ERA. The issues discussed include:

- Given the economic realities and the political issues involved with low income customers, subsidies are a reality
- Identifying customers in need is a difficult task
- Determining the amount of electrical usage to subsidize is difficult and often results in an arbitrary amount being used

The conclusion reached by most participants in the seminars is that a "Lifeline" tariff is probably the most efficient mechanism (although not necessarily the most effective – see the seminar materials for more details) to deliver a subsidy. It is recommended that ERA hold open hearings on this issue and develop and implement a lifeline tariff for all retail Licensees. The lifeline tariff details, however, may be different for the individual Licensees given the economic situation of their regions, and the composition of households (apartments vs. gers).

10.3 HEAT CUSTOMERS

Given the difficult economic situation, EES is not collecting the amounts billed to its heat customers on a timely basis. Heat for households is sold to the Choibalsan Public Utility Service Organization, which then resells the service to the individual households. The Public Utility Service Organization does not pay EES on a timely basis, however they eventually pay. The same is true of most entities receiving heat. In a purely commercial market environment, the Company would take vigorous action in order to collect amounts due from customers, up to and including disconnection. This is not possible during the winter months since heat is necessary for survival in the harsh winter environment. Since heat is perceived to be such a necessary human need, most countries do not allow customers to be disconnected during the cold months. The ERA is planning to develop a "Heat Consumption Rule" that will, among other things, specify the rights of Customers and Licensees. EES should make sure they exercise their rights under this new policy.

As recommended for the electricity business, EES and the other licensees should lobby ERA and the Government of Mongolia to (1) allow licensees to take more vigorous collection action with retail customers, including State Owned and Budget Entities, and (2) include an allowance for bad debt in the heat tariffs to recognize that virtually no suppliers collect 100% of the amounts billed to customers.

10.4 SUMMARY OF RECOMMENDATIONS

To strengthen the Billing and Collection process, the following recommendations were made in this chapter:

- The Government of Mongolia should allow licensees to take more vigorous collection action with retail customers, including State Owned and Budget Entities. EES should be allowed to collect for service provided. The GOM should consider directly subsidizing these entities so they can meet their financial obligations.
- The Government of Mongolia should discontinue the practice of having a list of entities it will not allow suppliers to disconnect.
- The ERA should include an allowance for bad debt in the heat tariffs to recognize that virtually no suppliers collect 100% of the amounts billed to customers.
- The ERA should issue an order to have all meters owned and maintained by the Distribution Companies over a set period of time of approximately 5 years.
- It is recommended that ERA hold open hearings on the development of "Lifeline" electricity tariffs and implement such tariffs for all retail electricity Licensees.

Each of the above recommendations is documented in Chapter 13.

11. MANAGEMENT INFORMATION SYSTEMS

11.1 BACKGROUND

In this chapter we describe the present Management Information Systems (MIS) and Information Technology (IT) systems being used in the Eastern Electricity System (EES), the process followed in their development, their adequacy and recommendations for further development.

EES is an integrated electricity generation and distribution company with the main office situated adjacent to the coal fired generation plant and a distribution office handling consumer related activities, including billing, located in separate facilities a short distance from the main office.

In July 2002, a capacity building seminar was held for the EES management team to discuss MIS and IT issues. A copy of the presentation is included as Appendix C-3.

11.2 DEVELOPMENT OF MIS SYSTEMS

During the late 1990's EES successfully installed the Consumer Billing system being supported by the Energy Authority and now support this system themselves.

EES installed a General Ledger and Financial system package called "Pyramid" from Interactive Software. This system provides a high level of integration between the sub ledgers such as Purchases and Material Stores with the General Ledger as well as containing a sound end of month reporting module. The only sub system that requires data re-entry is from the payroll system.

Because of EES isolation from Ulaanbaatar they have to be independent and self-supporting. An MIS/IT Manager was appointed in early 2000 and has worked closely with overall management to develop reliable and effective support systems. One of the earliest tasks was to develop and agree on a four-year IT Strategy that has been followed.

A Local Area Network (LAN) has been installed to service the Head Office (HO) building and managers have been given training in using the LAN and the available systems.

EES have a project underway to extend the LAN to computer equipment in the plant.

The site has a full set of Microsoft products such as Excel and Word that are supported across the LAN.

11.3 FINANCIAL SYSTEMS

The financial systems are based on the Pyramid System from Interactive Software and a later version is to be installed before the end of 2002. This system has full integration between sub ledgers and produces the end of month financial information that are entered into Excel spreadsheets for final reporting to Ministry of Finance and other government bodies. Reports are currently produced by the 10th day after the month end and the 15th day for the quarterly reports.

By the end of 2002 EES is expecting to install the Pyramid 4 level that will automatically produce the month end reports in the approved format.

As data is available on the LAN, management personnel have been trained and are encouraged to extract information for their own use.

The level of MIS reports that management personnel are receiving on a prompt and regular basis are adequate for managements needs. The IT Manager takes a full role in the overall management of the organization and therefore, with the Finance Manager, can provide information and reports to meet the needs of the Executive Group.

The Payroll System is still an older DOS based system that has continued to be used because it contains the employee history. Data from this system is analyzed and re-entered into the General Ledger system.

11.4 SALES AND BILLING SYSTEM

The Distribution Office has a separate sales and billing systems that keeps track of consumer accounts and provide various analysis to determine technical and commercial losses and management of meter readers' performance.

The process for producing bills is the same for both business entities and householders. The meter reader reads the meter [1], completes and signs his and the consumers power notebook and calculates the bill amount. Back in the office the consumer's ledger is updated on the computer from the meter reading records.

The consumer is given 10 days to pay the account by going to a bank or the distribution office and making payment. The bank issues a daily payment schedule and transfers the total to EES bank account.

Technical and commercial losses are high, affecting the amount of energy produced that is billed to customers. There are many slow payers and EES does sometimes disconnect non-paying customers and charges for re-connection. The biggest problem is with the heating company who are traditional slow payers. Under Mongolian Law EES has difficulty writing off bad debts or making a provision for bad debts.

Reports are produced for technical and commercial loss percentage by transformer and meter reader and these enable management to concentrate their efforts on the poor performing areas.

The computer systems at the distribution office are not electronically connected to the HO system and although telecommunications is an issue in this remote area it may become possible in the future for this to happen.

11.5 MIS MANAGEMENT

The Finance Manager is responsible for financial systems and the Distribution Center manager is responsible for the retail system. IT technical assistance is provided by the MIS/IT Manager who spends 100% of her time related to IT matters. As a result the IT

[1] The meters are bought and owned by the consumer

systems are well maintained and training is given to users to assist them get the maximum benefit from the systems. The MIS/IT Manager participates in the management group and can provide additional information or reports when requested.
There is an IT Strategy that has been agreed and is being followed and that will enable the IT section to continue to provide a high level of support. The issue is to ensure that the funding necessary to support the IT Strategy is maintained.

EES managers appear to have a high level of computer awareness.

11.6 ADEQUACY OF PRESENT IT SYSTEMS

The present systems are providing a good level of support for this organization. The organization needs to also monitor its cash flow situation, as in a commercialized enterprise availability of cash is vital. The distribution office is getting adequate information to identify overdue accounts and where losses are occurring in the supply network.

The following issues where identified and discussed with the executive group:

- The need to continue to support the IT Strategy in the face of financial pressures caused by mounting debtors.
- Expanding the LAN network and connecting the Distribution office to the network.
- When technology allows provide Internet access to allow transfer of data with the Electricity Regulatory Authority and other Government agencies.
- Develop a more modern payroll and personnel system based on a package that will transfer data automatically to the General Ledger
- Developing systems to forecast and monitor cash position of the organization.

11.7 RECOMMENDATIONS FOR IT / MIS DEVELOPMENT

The following are our recommendations to strengthen the MIS systems at EES. These recommendations were discussed with the EES executive group:

- Continue to revise and support the IT/MIS Strategy
- Expand the LAN Network and connect the Distribution Office into the network
- Develop a more modern Payroll and Personnel System
- Develop a System to Forecast and Monitor EES's Cash Position

Each of the above recommendations is documented in Chapter 13.

12. ADMINISTRATIVE PROCESSES

12.1 GENERAL

In the prior chapters, the primary processes of Generation, Electricity Transmission and Distribution, Heat Distribution, Sales & Service, Pricing, and Billing & Collection were discussed. In order for a company to efficiently carry out those core processes, it must have an effective administrative infrastructure in place. This chapter addresses the administrative processes.

12.2 PLANNING

The Company has a Planning Manager who develops the annual plan (budget), monitors actual results as compared to the plan throughout the year, and develops longer-range plans. See Chapter 3 for a discussion of the plan for the year 2002, the progress toward that plan, and the plan for 2003 through 2005. Although the planning information contained in this report is summarized at the Company level, each department has a plan for its costs on a lower level of detail.

In a more commercial environment, planning takes on a much more critical importance to the success of the company. No longer are plans something to be developed and sent to a government ministry for incorporation into a broader plan. Now, the Company must plan in order to guide its operations and finances and modify that plan as appropriate when conditions change.

The Planning Manager is knowledgeable about the company and its operations and financial situation. This strength must be built upon as the Company moves forward. Recommendations in the planning area include:

- Continue to monitor monthly actual results against the original plan for the year. In addition to the numerical data, prepare a report explaining the reasons for significant variances.
- As conditions change throughout the year, the Manager, in consultation with the operating departments, should develop what is sometimes referred to as a "Current Outlook" that reflects the actual results to date and the plan for the remainder of the year, adjusted for known or anticipated changes such as tariff adjustments, fuel cost changes, sales and output changes, etc. This will give the management team a more realistic picture of the near future that it can use to adjust operations and financial parameters.
- In addition to the income statement and detailed cost elements, the company should also develop a Cash Forecast or plan in order to better plan for short-term borrowings and overall working capital management. See Chapter 11 for the recommendation concerning a cash flow forecasting system.

12.3 HUMAN RESOURCES

12.3.1 The Company Organization

Eastern Energy System is a State Owned Shareholding Company operating under the Company Law of Mongolia. At the present time, its shares are 100% State Owned by the following State Agencies:

- Ministry of Infrastructure (41%)
- Ministry of Finance and Economy (20%)
- State Property Committee (39%)

The Governing Board consists of the following members:

Mr. Batrenchin, Chairman of the Governing Board, Specialist of the Fuel and Energy Department of the MOI.
Mr. Baldorj - Specialist of the Fuel and Energy Department of the MOI.
Mr. Mondor - Head of the Project and Program Department of the Energy Authority.
Mr. Sedbazar - Head of the Engineering Department of the Energy Authority.
Mr. Olziisaikhan - Head of the Privatization Department of the SPC.
Mr. Altantuya - Specialist of the Privatization Department of the SPC.
Mr. Bayarmaa - Specialist of the MOFE.

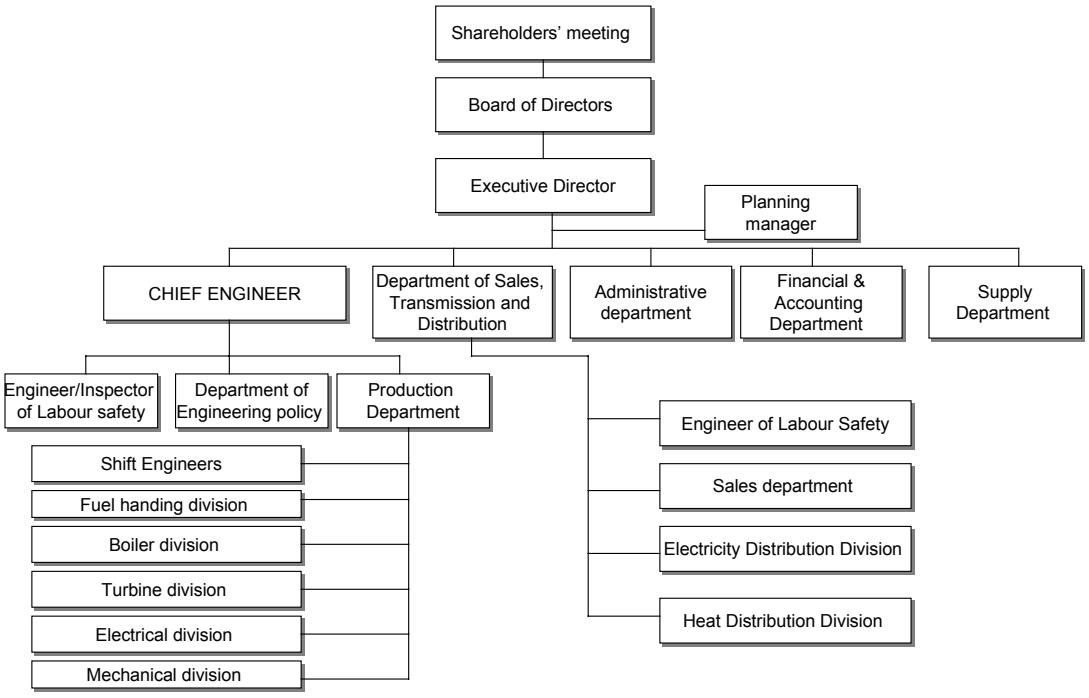
The company has approximately 463 employees. The Senior Management of the company consists of:

Mr. Tumurkhuyag, Executive Director
Mr. J. Erdenetsogt, Chief Engineer with responsibility for power station operations
Mr. Bayambaa, Head of Sales, Transmission, and Distribution
Mr. Ayush, Head of Administrative Department
Mr. Enkhbaatar, Head of Financial and Accounting Department
Mr. Erdenetogtokh, Head of Supply Department
Mr. Erdenbulgan, Manager of Planning
Mr. Banzragch, Head of Engineering Department
Mr. Enkhbaatar, Head of Sales Department

The organization chart for the entire company, is shown in Exhibit 12.1

Exhibit 12.1 Organization Chart

"Organizational chart of the Eastern Electricity System in Dornod"



The Executive Director has 6 direct reports including:

- Chief Engineer, responsible for the Power Station
- Head of the Sales, Transmission, and Distribution System
- Head of Administrative Department
- Head of Financial and Accounting Department
- Head of Supply Department
- Manager of Planning

The larger organizations are discussed individually in the following sub sections

Chief Engineer

The Chief Engineer is responsible for all power station operations. Approximately 57% of all employees report to the Chief Engineer. The primary divisions of the Production Department, along with their staffing levels, are shown in the following table:

Division	Employees
Boiler	69
Fuel Handling	48
Turbogenerator	61
Electrical	60
Mechanical	20
Shift Engineers	5

The following also reporting to the Chief Engineer:

- Engineering Policy Department – provides technical expertise to other departments on various issues and develops technical policies. The MIS/IT Manager is in this department.
- Labor Safety Engineer - responsible for labor safety, fire protection, and building inspection

Sales, Transmission, and Distribution

The functions of the various units and their complement of employees are as follows:

- Electricity Distribution (60)
  - Operation and Maintenance of lines, substations, and transformers
- Sales Department (32)
- Bill Writers for households (24)
- Meter Readers for entities (2)
- Engineers and Inspectors (4)
- Data input (2)
- Heat Distribution (18)

Supply Department

This department has 64 employees performing a variety of support functions including:

- Procurement
- Warehousing
- Maintenance
- Cleaning
- Medical
- Drivers

Other Units

- Finance and Accounting with 8 employees.
- Administrative Department with 5 employees
- The Planning Manager

12.3.2 Perspectives on the Organization

The Role of the Governing Board

The Law of Mongolia on Corporations requires that all Mongolian members of the Governing Board be government employees representing their respective ministries that are the shareholders. In the short term prior to privatization, this kind of government control is common, particularly in the energy sector. However, several problems are encountered with this type of Governing Board, of which shareholders representing their ministries predominate. Primary to this is severe conflict of interest. Some entities that EES has significant business relationships with are also owned by the government agencies represented on the board, specifically customers that are State Owned entities.

These types of interlocking directorships must be phased out, allowing true independent commercial operation of the restructured energy sector.

If the opportunity arises to modify the Law on Corporations it is recommended that the Executive Director of the Company should be a member of the Governing Board.

There is also a need to provide training to individual board members to educate them on corporate governance issues and effective ways to govern in a commercial environment. The Board members should realize that their role is to steer the company in the right direction, not dictate operational issues that should be left to management.

Compensation System

A critical component of a company's human resource management system is its compensation program. The Company is definitely focused in the right direction here, although there is always room for improvement. Companies in developed countries are continually modifying their compensation systems to reflect economic and competitive conditions, attract and retain qualified employees, and reward those employees for good performance.

EES has a compensation policy that consists of the following 5 components:

- Base salary
- Monthly Incentive Compensation
- Annual Performance Bonus
- Experience Benefit
- Skill Benefit

It is encouraging that the Company utilizes monthly and annual incentive compensation or bonus plans to focus employees on contributing to the goals of the Company. The monthly incentive compensation plan "Fund" is a percent of base salary with a maximum achievable level of 80%. The annual plan provides for up to an additional month of pay based on performance. The Company has modified its bonus plans to be more commercially oriented and include financial as well as operational goals and targets. Each division has its own operating, technical and financial criteria. Payouts are based on overall company performance, specific department performance, and individual performance. It is interesting to note that EES has structured its plan so that employees in the Transmission and Distribution unit have the opportunity to earn bonuses comparable to those earned by power station employees. In the past, power station employees were eligible for larger bonuses than other employees. This is a positive step since the Transmission and Distribution and Sales functions are becoming increasingly important in the more commercial environment. Focusing on Key Performance Measures

must be the main focus of any compensation plan. To evaluate performance, each Division has a "Contract" with the Executive Director outlining the expectations. A sample "Contract" Is contained in Appendix B-12.

The Experience Benefit allows employees to receive additional compensation based on years of service. This is a carry over from former times when the energy sector had difficulty retaining experienced personnel. For most energy sector entities, this benefit is no longer necessary. For EES, however, it is still appropriate since many employees would rather live in Ulaanbaatar, Darkhan, Erdenet, and other cities in the Central Energy System and would relocate there if the opportunity arose. In order to retain experienced personnel in EES, this component is appropriate at the current time. If conditions change, management should reconsider whether this form of compensation is still needed.

Non-professional employees (Workers) can also receive a "Skill" component. For example, as a welder increases his proficiency in certain areas, he receives a bonus.

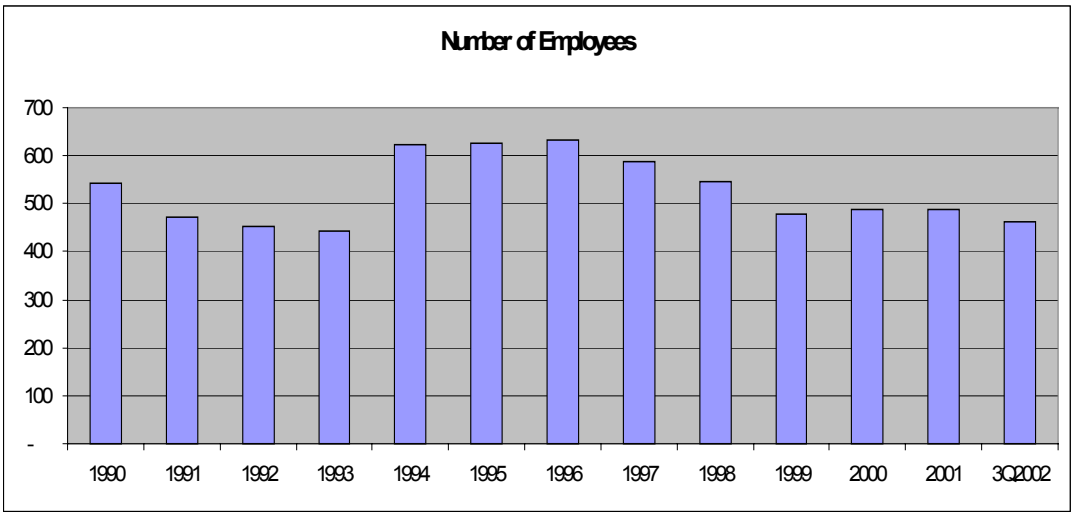
It is recommended that the Company continue to enhance the compensation system to ensure that employees are compensated based on their contribution to the success of the organization. The Incentive Compensation or Bonus Plan is a progressive measure. The Skill Benefit is also a way to encourage non-professional employees to upgrade their skills and keep up with new technology. The Experience Benefit is currently necessary, but should be periodically revisited to ensure it is achieving the necessary results.

Staffing Levels

One question always surfaces when reviewing the human resource area: "Is the employee complement at the proper level?" The answer depends on a variety of issues including the extent to which employee costs contribute to the overall cost of the operation. In Chapter 3 of this report, we saw that, for the year 2001, salaries and associated costs such as Social Security and Labor Safety amount to approximately 21% of the total costs of the Company. This is significant, but much less than fuel (33%) and depreciation (28%). Salaries, however, are a category of costs over which the Company has a significantly greater level of control than fuel, for example, and therefore the Company must exercise management control over the number of employees. It is recommended that arbitrary staff reductions NOT be made, however.

Employee levels over time are as shown in Exhibit 12.2.

Exhibit 12.2 Employee Levels



The number of employees increased in 1994 by nearly 200 due to EES taking over the heating boilers and diesel stations in various isolated soums. Beginning in 1997, those responsibilities were gradually returned to the soums and the number of employees began to decrease. The current employee complement of approximately 463 is near the low point for the last 12 years.

It is the author's experience that mandates such as "A 10% reduction in staff across the board" are not effective and lead to "numbers games" and the use of contract personnel that may actually increase costs. In the more commercial environment, management should focus on a reduction in total costs. If reduced staffing levels are the economic choice, then employee reductions occur as part of an overall plan in the areas determined to be most appropriate. For example, as a consequence of the refurbishment work being performed and the resulting changes in operating practices, there may be an opportunity to reduce employee levels. The Company should take such opportunities as they arise. The reductions should be accomplished to the extent possible through normal attrition (not replacing employees who retire, die or otherwise leave) and, where that does not produce the desired results, through a program that provides financial incentives for employees to leave.

There is a danger in equating employee reductions with industry restructuring. If employees feel that restructuring and commercialization is focused on reducing employment, they will resist restructuring and not focus their efforts on achieving improved results. In fact, due to the more commercial environment in which the Company operates, there could be good reason to increase the number of employees in certain areas such as meter reading, collection, and customer service. The bottom line is that the Company should effectively manage its work force in an economic manner to achieve positive results on its key performance measures.

It is recommended that the Company, as part of its overall cost reduction program, take every opportunity to manage employee levels (a factor over which management has a significant level of control) based on operating and financial criteria, as opposed to

arbitrary reductions. This may result in reductions in some areas and increases in other areas.

12.4 FINANCE AND ACCOUNTING

In a commercial environment, the role of the Finance and Accounting area changes significantly. As opposed to recording and reporting information for a government ministry, the focus changes to informing the management team, the Governing Board, and other stakeholders of the position of the company. In the case of EES, one of the significant stakeholders is the Energy Regulatory Authority. In the future, the company may also be concerned with potential investors, who require significant amounts of detailed information and disclosure.

In Chapter 3, there was significant discussion of Financial Accounting, aimed at an external audience. Recommendations were made concerning the movement closer to full compliance with International Accounting Standards (IAS). This is important as the company moves toward a commercial environment and in the future as outsiders take a closer look at the Company. The reader should refer to Chapter 3 for more information on Financial Accounting.

Equally important, however, is the area of Management Accounting, which is focused on accumulating and reporting information in a manner that helps first line managers to monitor and control the costs of their individual operations. This is the area that the Finance and Accounting personnel must focus the entire management team on to achieve overall cost control. In Chapter 3, it was highlighted that there is a need to monitor costs by the function being performed (generation, transmission, and distribution of electricity and heat). This will provide valuable insight into pricing and other decisions.

12.5 PROCUREMENT

Similar to the other processes discussed, procurement will be influenced to a great extent by the move to a more commercial environment. Since fuel represented 33% of overall costs in 2001, that procurement process is extremely important. The Aduunchuluun Mine, located 7 km from the power station, is the only fuel supplier. This mine is privately owned. In the Central Electricity System, the fuel prices are determined by the Ministry of Infrastructure since the mines supplying coal are State Owned. There is a question as to whether the price of coal from privately owned mines is also subject to approval from the Ministry, or rather determined by direct negotiation between EES and the mine. Given that there is only one fuel supplier to EES, however, the opportunity for competitive fuel procurement is limited in any case.

The other significant procurement area is spare parts and consumable materials. EES has a staff responsible for this; however, there is duplication due to a decree from the Minister of Infrastructure that the energy sector entities procure certain spare parts and consumables through the Energy Authority (EA). In the case of mazut, an imported commodity with a price fluctuating based on the world market price of oil; such a directive may be necessary. Also, to the extent that significant volume discounts are available, centralized procurement may be justified. However, that does not occur with many spare parts and consumable materials. Discussion with the Procurement staff of EES and other licensees indicates that they feel that they can procure many items at a lower cost by purchasing direct rather than relying on the EA. In addition, they save the service fee charged by the EA.

It is recommended that the Ministry of Infrastructure revise the decree requiring licensees to procure materials through the EA. The licensees should be given the option of procuring the items themselves. Of course, if the licensee feels that it receives a lower price by having EA do the procurement, then it may do so.

12.6 SUMMARY OF RECOMMENDATIONS

Following is a summary of recommendations made in Chapter 12:

- In addition to the income statement and detailed cost elements, the company should also develop a Cash Forecast or plan in order to better plan for short-term borrowings and overall working capital management.
- If the opportunity arises to modify the Law on Corporations it is recommended that the Executive Director of the Company should be a member of the Governing Board.
- As part of its overall cost reduction program, EES should take every opportunity to manage employee levels (a factor over which management has a significant level of control) based on operating and financial criteria, as opposed to arbitrary reductions. This may result in reductions in some areas and increases in other areas.
- The Ministry of Infrastructure should revise the decree requiring licensees to procure materials through the EA. The licensees should be given the option of procuring the items themselves. Of course, if the licensee feels that it receives a lower price by having EA do the procurement, then it may do so.

Each of the above recommendations is documented in Chapter 13.

13. RECOMMENDATIONS AND ACTION PLANS

13.1 RECOMMENDATIONS FOR COMPANY ACTION

The recommendations made in this report fall into two categories. This section deals with the recommendations to the management team of EES that it has the ability and authority to take on its own initiative within current laws and regulations. Section 13.2 deals with Sector Recommendations.

A table has been developed for each recommendation and includes:

- The Recommendation
- Background on the issues to give the reader a framework to understand the situation
- Preconditions that are necessary in order to carry our the recommendation
- A Summary Action Plan that includes the primary tasks, the person or group responsible for the task, and a proposed time frame. These are not detailed action plans, but rather a summary road map that the Company can use to develop the individual assignments in order to achieve progress on the recommendations.
- The Results Expected as a result of implementing the recommendation.

As a practical matter, not all recommendations can be implemented in a short period of time. However, progress will only be made if the Company begins implementation of the commercialization recommendations: one step at a time. EES must begin to manage it's own future.

The reader is encouraged to read the entire report for a more in depth discussion of the situation and the reasons for each of the recommendations made.

Company Recommendation A

Continue to improve accounting and reporting and move toward IAS compliance over the next few years

Background of the Issue

Although the accounting procedures somewhat conform to International Accounting Standards (IAS), they cannot be considered to be in strict compliance with IAS. The Company actually has a reasonable, workable accounting system as compared with energy entities in many developing countries, showing that it has made significant progress. Strategic investors place a high importance on financial statements that are in compliance with IAS. Limitations to the financial statements include:

- There is no disclosure to enable the reader to obtain a good understanding of the statements. The reader does not know, for example, the basic accounting principles used to produce the statements or the reasons for major deviations in balances. Adequate disclosure is a critical element of IAS compliance.
- No bad debt expense is recorded, resulting in an overstatement of Accounts Receivable and overstated net income.
- Maintenance costs are recorded as capital expenditures in the fixed asset accounts as opposed to being charged as a current period expense
- Loan Liabilities are not recorded until the projects are completed, resulting in an understatement of Construction Work in Progress and an understatement of Long-Term Debt.
- Loan interest for on-lending agreements has not been recorded.

Full compliance with IAS is costly, therefore, a phase-in approach is recommended. A full IAS audit is not recommended in the near term.

Preconditions

It is assumed that the accounting specialists are trained in IAS as a result of the ADB project, therefore no preconditions exist.

Summary Action Plan

Task	Responsibility	Time Frame
1. Develop footnote disclosures for issuance with the Annual financial statements and publish them with the 2002 financial statements. Include footnotes for: • Accounting Principles used • Estimated provision for bad debt expense (not recorded) • Loan Liability and Construction Work in Progress for International loans	Finance and Accounting Department	January 2003

Company Recommendation A Continue to improve accounting and reporting and move toward IAS compliance over the next few years		
2. Petition the ERA to include a provision for bad debt in the tariffs. If such petition is approved by ERA, then record bad debt expense and uncollectable provision in the financial statements. (See Sector Recommendation E)	Finance and Accounting Department	Mid 2003, the time frame assumed for the next tariff filing
3. Record preventive and periodic maintenance as a current period expense in the financial statements	Finance and Accounting Department	Effective 01 January 2003
4. Record interest expense, loan liabilities and construction work in progress for International Loans	Finance and Accounting Department	Effective 01 January 2003
Results Expected 1. More transparency of the financial position of EES 2. More credibility with potential investors 3. A clearer financial picture should make it easier to explain to ERA and other outside parties the need for tariff adjustments		

Company Recommendation B

Engineers and finance specialists should perform a financial analysis on future projects prior to presenting them to management for approval.

Background of the Issue

In the new industry environment, the company must adopt a more commercial or business orientation. In prior years, most decisions, including investment decisions, were made externally by Ministry of Infrastructure personnel. In the future, the company will be responsible for managing its operations and investments in an economic manner.

Training in financial analysis was provided to the EES management team and engineering and finance specialists.

Preconditions

The KfW and World Bank rehabilitation projects present a very significant opportunity to perform financial analyses on many of the components of the projects. However, if the Company has no control or influence over procurement decisions or the scope of work on the projects, then the recommendation would be applied to minor replacement projects only.

Summary Action Plan

Task	Responsibility	Time Frame
1. Establish a "Financial Analysis Team" with members from the following departments: • Project Implementation Unit • Finance and Accounting • Engineering • Planning	Executive Director	01 February 2003
2. Issue a Decree that requires a financial analysis to be performed on all proposed investments (over a certain amount, say 5 million Tg) prior to presenting the project to management for approval.	Executive Director	15 February 2003
3. Review the individual work packages of the projects and determine if the expected benefits from the expenditures yield a positive Net Present Value. In the event of alternative options, select the most financially viable alternative	Financial Analysis Team	01 March 2003 - 01 May 2003
4. Perform a financial analysis on all future investment projects	Finance and Accounting Department	Ongoing

Company Recommendation B

Engineers and finance specialists should perform a financial analysis on future projects prior to presenting them to management for approval.

Results Expected

1. Most effective use of loan proceeds.
2. Effective use of investment funds in the future
3. Ability to demonstrate to the ERA and other outside parties that capital expenditures are being made in an effective manner

Company Recommendation C

Revise the Cost Accounting Processes to be able to produce reports of estimated costs by line of business

Background of the Issue

As a commercial entity, it is important to understand the cost of providing the products or services to the individual business lines in order to manage these businesses and make pricing decisions. In addition, as a regulated company, EES must justify its costs and prices to the ERA. For those reasons, it is important to be able to identify costs to the various services provided. Since it is not practical, or in some cases possible, to keep track of all costs by product, estimates are often required.

Preconditions

The task becomes easier if the accounting system can accommodate an additional level of detail, however, this is not absolutely necessary

Summary Action Plan

Task	Responsibility	Time Frame
1. Review the current allocation of costs between electric and heat. Revise if appropriate.	Finance and Accounting / Estimation Engineer	15 Jan 2003 – 28 Feb 2003
2. For the electric costs, develop methods to allocate costs to generation, transmission, and distribution	Finance and Accounting / Trans and Dist Dept.	01 March 2003 – 15 April 2003
3. Apply the new methodology to the 1st quarter 2003 costs	Finance and Accounting	15 April 2003 – 30 April 2003
4. Revise any accounting programs or procedures as necessary	Finance and Accounting	30 April 2003 – 30 June 2003
5. Utilize the methodology on a quarterly basis to produce	Finance and Accounting	Ongoing

Results Expected

1. Knowledge of the costs related to the lines of business
2. Improved ability to make pricing decisions

Company Recommendation D

Establish improvement targets for Key Performance Measures in the energy generation, distribution, and billing and collection processes and report on progress monthly

Background of the Issue

A significant amount of information is currently developed on power station operations, the electrical system, billing, collection, etc. This information should be consolidated into a standardized report and made available to employees, the Governing Board, and other interested stakeholders.

The management team then must establish reasonable targets, over time for each of the measures considering improved conditions resulting from rehabilitation work on the KfW and World Bank projects and from other improvements to be made by management over time as part of continuous improvement.

Preconditions

A significant amount of information is currently available; therefore, no major obstacles are anticipated.

Summary Action Plan

Task	Responsibility	Time Frame
1. Assign the Planning Manager as the person responsible for the Key Performance Measures	Executive Director	30 January 2003
2. Assign Power Station and Transmission, Distribution, and Sales personnel to work with the Planning Manager (as a team) to develop the measures and targets	Executive Director	30 January 2003
3. Determine the measures to be reported on and develop a standardized report with historical data for reference	Planning Manager's Team	01 March 2003
4. Determine targets for each measure in future quarters, considering improvements expected from rehabilitation projects and other improvements	Planning Manager's Team	15 May 2003
5. Issue a quarterly report of the actual results compared to the targets	Planning Manager	Quarterly, beginning with the 30 June 2003 report

Results Expected

1. Identification of Key Performance Measures for all areas of the Company
2. Constant monitoring to keep the entire management team focused on results.

Company Recommendation E

The Management team must take advantage of the KfW and World Bank loan proceeds in the most optimal manner from an operational and financial perspective to realize improvements on the Key Performance Measures

Background of the Issue

The KfW project is aimed at improving power station operations and the World Bank loan focuses on loss reductions in the electricity and heat distribution systems. EES must make optimal use of these funds to make improvements on its Key Performance Measures.

NOTE: This recommendation is related to Company Recommendation B, the financial analysis of future investment projects.

Preconditions

The EES management team must have the authority to influence the scope of work and make procurement decisions. If the Ministry of Infrastructure does not allow the Company to make these decisions, then the EES management will not be able to implement this decision.

Summary Action Plan

Task	Responsibility	Time Frame
1. Establish a "Financial Analysis Team" with members from the following departments: • Project Implementation Unit • Finance and Accounting • Engineering • Planning	Executive Director	01 February 2003
2. Issue a Decree that requires a financial analysis to be performed on all proposed investments (over a certain amount, say 10 million Tg) prior to presenting the project to management for approval.	Executive Director	15 February 2003
3. Review the individual work packages of the projects and determine if the expected benefits from the expenditures yield a positive Net Present Value. In the event of alternative options, select the most financially viable alternative	Financial Analysis Team	01 March 2003 - 01 May 2003
4. Perform a financial analysis on all future investment projects	Finance and Accounting Department	Ongoing

Company Recommendation E

The Management team must take advantage of the KfW and World Bank loan proceeds in the most optimal manner from an operational and financial perspective to realize improvements on the Key Performance Measures

Results Expected

1. Improved performance of the power station
2. Reduced losses on the electric distribution system
3. Reduced losses on the heat distribution system

Company Recommendation F

Once the power station and distribution rehabilitation work is completed, sufficient resources must be devoted to periodic maintenance to prevent a recurrence of the situation in the 1990s

Background of the Issue

The Power Station deteriorated in the 1990s due partially to lack of funds for proper maintenance. The KfW projects include significant work to improve operating characteristics. The electricity and heat distribution systems are experiencing high losses due partly to equipment deterioration. The World Bank Loan is addressing some of these problems. The Company must devote sufficient resources to properly maintain the equipment to prevent deterioration and to enable the facilities to operate in an optimal manner.

Preconditions

Funds for maintenance must come from customer tariffs; therefore, ERA must be willing to increase tariffs.

Summary Action Plan

Task	Responsibility	Time Frame
1. Develop a maintenance plan and associated budget for the power station	Chief Engineer	30 Sept. 2003
2. Implement the plan, to the extent of availability of funds.	Chief Engineer	During 2003
3. Future tariff applications should include the maintenance plan and associated cost projections	Finance and Accounting Department	In 2004, when a tariff application is filed
4. Repeat the process for the electricity and heat distribution systems	Chief Engineer / Fin. & Acct.	2005

Results Expected

1. Improved availability and performance of the power station
2. Reduced losses on the electricity and heat distribution systems
3. Improved cost recovery

Company Recommendation G

Become more proactive in the regulatory process. For example, develop and propose Incentive Mechanisms to ERA

Background of the Issue

EES should not wait to have the ERA impose regulatory requirements upon it. The Company should be proactive and propose various improvements in regulatory procedures to the ERA. Rate of Return (or Cost Plus) Regulation does not necessarily provide a licensee with incentives to reduce costs, improve service levels, or to implement new, innovative programs. Performance Based (or Incentive) Regulation aims to overcome this deficiency. If a pre determined performance measure has been met or exceeded, the Licensee is rewarded in the form of higher "Profits". If targets are not met, the Licensee is penalized, generally in financial terms (lower "Profits)

In the case of EES, possible incentive targets could include items such as:

- Improvement in Power Station Availability
- Reduction of the Fuel Rates
- Reduction of Technical and Commercial Losses

The mechanisms should be developed by determining a reasonable base level for a particular measure (say fuel rates) using historical data and recent demonstrated levels. If the actual performance over a period of time (say one year) were better by at least a given amount, then the tariff would be increased to provide EES with additional income. If the power station does not achieve the base level, then it would be penalized.

Also See Sector Recommendation D

Preconditions

ERA agrees that Performance Based Regulation is more effective than the current system.

Summary Action Plan

Task	Responsibility	Time Frame
1. EES submits a proposal to ERA	Chief Engineer and Finance & Accounting Department	15 July 2003
2. ERA conducts open hearings on the Licensee's proposals	ERA	30 August 2003
3. ERA issues an order specifying the incentive mechanism and the targets for each Licensee for the year 2004	ERA	01 November 2003

Company Recommendation G Become more proactive in the regulatory process. For example, develop and propose Incentive Mechanisms to ERA		
4. Licensees report on their individual progress in meeting the targets	Licensees	Quarterly
Results Expected 1. More effective form of regulation 2. Encourage innovation on the part of the Company 3. Lower cost of electricity 4. EES has the opportunity to be rewarded for their good results		

Company Recommendation H

Devote sufficient time and resources to the tariff process in order to present its position in a detailed, transparent, understandable manner to have a successful outcome

Background of the Issue

The tariff process is a new experience for all Licensees, including EES. In the newly restructured environment, it is a very critical process that determines, to a large extent, the profitability of the company. The regulatory process of establishing tariffs begins with the Licensee performing a detailed analysis of its operations and costs, using that information to develop a tariff proposal, and presenting the proposal to the regulator with sufficient supporting detail. The "Burden of Proof" in a tariff process is the responsibility of the Licensee. It is the regulator's job to review the proposal for reasonableness, make any necessary adjustments in a reasonable and transparent manner, and set the resulting tariffs.

It is recommended that EES devote sufficient time and resources to the tariff process in order to present its position in a detailed, transparent, understandable manner in order to have a successful outcome. The tariff proposal should include documentation of the initiatives that the company is undertaking to improve operations and reduce costs. This will provide the ERA with valuable information to convey to customers, the Government of Mongolia, and the general public as to the level of tariffs and any proposed changes.

Preconditions

None

Summary Action Plan

Task	Responsibility	Time Frame
1. Appoint a senior level Specialist from either the Finance & Accounting or Planning Department to be responsible for all tariff matters	Executive Director	01 February 2003
2. Issue a decree authorizing the Specialist to utilize personnel from various departments to prepare tariff applications and provide other information to the ERA	Executive Director	15 February 2003
3. The Specialist should deal with ERA personnel to determine the type of information needed to support tariff applications and work with Company personnel to document costs and justify projections to be used.	Specialist	Ongoing

Company Recommendation H Devote sufficient time and resources to the tariff process in order to present its position in a detailed, transparent, understandable manner to have a successful outcome		
4. When a tariff application is going to be filed, the Specialist and other designated personnel should be devoted on a full time basis to prepare a detailed tariff proposal	Specialist and Designated Personnel	Sometime in 2003
Results Expected 1. More reasonable tariffs for EES 2. Better justification for any subsidy required 3. Higher profitability		

Company Recommendation I

Continue to revise and support the IT/MIS Strategy

Background of the Issue

EES has been following a 4year IT/MIS Strategy and as a result has developed effective systems and a computer literate management team.

Under commercialization and the reduction in subsidies there is a shortage of funds to keep investing in computer equipment.

Without continued investment the success achieved so far will be put in jeopardy as equipment and systems are not continually updated.

Preconditions

Limited funds are available in the short-term; therefore, plans will have to be made with this limitation in mind.

Summary Action Plan

Task	Responsibility	Time Frame
1. Create an asset list of all equipment including date of purchase, capacity, software and level	IT Manager	15 February 2003
2. Identify the opportunities for additional system support and conduct a cost/benefit analysis to justify development	IT Manager	15 March 2003
3. Agree on the IT hardware and software standards that EES will follow for all application and system software in the future so that all staff can use common products and that all computers can communicate with each other.	IT Manager	April 2003
4. Identify the current equipment that can meet the future needs and that which cannot and develop a replacement and enhancement program.	IT Manager	May 2003
5. Document the proposals in the form of an IT Strategy including costs, benefits, time scales, and training plans. Discuss with the executive group and seek approval and commitment.	IT Manager and Executive Director	June 2003

Results Expected

1. IT equipment and software being used will be compatible
2. It will be easier in the future to train staff to use common systems
3. IT equipment will be kept up to date in the future
4. Better use will be made of the LAN to speed communication, reduce manual effort and save data re-keying

Company Recommendation J

Expand the LAN Network and connect the Distribution Office into the network

Background of the Issue

Access to the HO computer system has been enabled by the installation of a LAN but the nearby Distribution Office has no access to this system. By linking these systems more up to date data will be available and better communication will be provided to the Distribution office.

Preconditions

Support for telecommunications is difficult in this area of Mongolia. Alternatives such as wireless links could be evaluated.

Limited funds are available in the short-term; therefore, plans will have to be made with this limitation in mind.

Summary Action Plan

Task	Responsibility	Time Frame
1. Identify and evaluate the alternative communication methods that EES could use.	IT Manager	February 2003
2. Review Distribution offices requirements and identify where being connected would have a benefit	IT Manager/ Distribution Manager	March 2003
3. Develop a proposal including cost/benefit analysis and obtain approval	IT Manager & Executive Director	March 2003
4. Implement the network connection and train staff in its use	IT Manager/ Distribution Manager	June 2003

Results Expected

1. Distribution office will be able to communicate with the HO electronically
2. Financial data could be transferred daily
3. HO and Distribution Office will be able to communicate via e-mail
4. Better back-up provisions could be provided.

Company Recommendation K

Develop a more modern Payroll and Personnel System

Background of the Issue

EES are using an older DOS based payroll system that is not compatible with other software and requires payroll data to be re-entered into the financial system. The reason to keep using this system is that it contains historical data about staff, earnings and pay rates.

Preconditions

Existing data needs to be converted for use in a new system.

Summary Action Plan

Task	Responsibility	Time Frame
1. Analyze the payroll and personnel needs for EES in the form of a Requirement Specification. Include the necessary interface to transfer payroll data to the financial system	IT Manager/Payroll Manager	February 2003
2. 2. Review payroll package systems that are available in Mongolia to determine the best fit.	IT Manager/ Payroll Manager	March 2003
3. 3. Develop a proposal including cost/benefit analysis and obtain approval	IT Manager/ Executive Director	March 2003
4. 4. Implement the Payroll system and train staff in its use	IT Manager & Payroll	June 2003

Results Expected

1. The payroll and personnel system will be compatible with other systems in use at EES
2. Payroll data could be transferred automatically to the financial system

Company Recommendation L

Develop a System to Forecast and Monitor EES's Cash Position

Background of the Issue

While running a profitable operation is important in a commercialized enterprise so is maintaining a sound cash position. EES needs to continually forecast its forward cash position and take action to ensure it remains sound.

Preconditions

Accurate cash information needs to be entered into the system daily.

Summary Action Plan

Task	Responsibility	Time Frame
1. Identify all activities that affect EES's cash position.	IT Manager/ Finance Manager	March 2003
2. At the time of developing the annual budget also forecast monthly and weekly what the expected cash position should be based on the budget.	IT Manager/ Finance Manager	April 2003
3. Develop a system to collect all the cash related transactions and compare actual with forecast on a weekly basis.	IT Manager/ Finance Manager	May 2003
4. Take action before cash position deteriorates	Finance Manager	Continuous

Results Expected

1. EES will have a continuous measure of its current and expected cash position
2. Appropriate action can be taken before the situation deteriorates.

Company Recommendation M

Take every opportunity to reduce employee levels (a factor over which management has a significant level of control) based on operating and financial criteria. This may result in reductions in some areas and increases in others.

Background of the Issue

Salaries and associated costs amount to 21% of the total costs of the Company. This is significant, but much less than fuel (33%) and depreciation (28%). Salaries, however, are a category of costs over which the Company has a significantly greater level of control than fuel, for example, and therefore the Company must exercise management control over the number of employees. It is recommended that arbitrary staff reductions NOT be made, however.

Management should focus on a reduction in total costs. If reduced staffing levels are the economic choice, then employee reductions occur as part of an overall plan in the areas determined to be most appropriate. For example, as a consequence of the refurbishment work being performed and the resulting changes in operating practices, there may be an opportunity to reduce employee levels. The Company should take such opportunities as they arise. Of course, operating and financial considerations may require additional staff in some areas and reduced staff in other areas. The reductions should be accomplished to the extent possible through normal attrition.

Preconditions

Management must have a real commitment to cost reduction, including reductions in employee levels, if necessary. There is a danger in equating employee reductions with industry restructuring. If employees feel that restructuring and commercialization is focused on reducing employment, they will resist restructuring and not focus their efforts on achieving improved results.

Summary Action Plan

Task	Responsibility	Time Frame
1. Review the staffing levels of each department and determine the estimated employee reductions that are possible.	Chief Engineer / Trans and Dist. Dept	June 2003
2. Reduce employment levels through attrition in those departments that can operate with less staff	Human Resources	December 2004
3. For those areas that cannot reduce through attrition, develop a staff reduction plan to accomplish the reductions. The plan would include financial incentives to encourage employees to leave and, where that does not accomplish the reduction, a performance based layoff policy.	Human Resources	March 2005

Company Recommendation M Take every opportunity to reduce employee levels (a factor over which management has a significant level of control) based on operating and financial criteria. This may result in reductions in some areas and increases in others.		
4. On an annual basis, review the staffing levels of each Department and reduce staffing where necessary. Have each department document their need for the current number of employees.	Executive Director and Management Team	Ongoing, beginning in 2005
Results Expected 1. Lower Costs 2. Documentation of staffing levels for use in tariff applications and dealings with other outside entities.		

13.2 SECTOR RECOMMENDATIONS

EES operates within the context of the overall power sector in accordance with the laws of Mongolia and the policies of the Government, its Ministries, and the Energy Regulatory Authority. This results in obstacles to commercialization as a result of those constraints.

This section provides details of the primary recommendations made which the Company does not have the authority to implement on its own. It includes changes that the Government of Mongolia, its Ministries, and the Energy Regulatory Authority are encouraged to implement in order that the Company (and other Companies in the sector) has the opportunity to operate on a commercial basis.

A table has been developed for each recommendation and includes:

- The Recommendation
- Background on the issues to give the reader a framework to understand the situation
- Preconditions that are necessary in order to carry out the recommendation
- A Summary Action Plan that includes the primary tasks, the person or group responsible for the task, and a proposed time frame. These are not detailed action plans, but rather a summary road map that can be used to develop the individual assignments in order to achieve progress on the recommendations.
- The Results Expected as a result of implementing the recommendation.

Again, the reader is encouraged to review the entire report for a more in depth discussion of the issues.

Sector Recommendation A

The Government of Mongolia should retain the exchange rate risk associated with international loans.

Background of the Issue

The Government of Mongolia (GOM) negotiated loans with KfW denominated in DM and a loan with the World Bank denominated in US Dollars. The GOM then developed "On lending" agreements with EES for the KfW loans that specify repayment of principle and interest in DM. There is significant exchange rate risk associated with these loans. A prudent commercial entity exposed to such risk would hedge that risk with appropriate financial arrangements, involving a cost to the entity. EES is a rather small entity and does not have the expertise or financial resources to effectively hedge that risk.

It is, therefore, recommended that the GOM retain the exchange rate risk associated with these and other international loans. The GOM already has the exchange rate risk since it is the entity ultimately responsible for satisfying the requirements of the International Loans. Also, it is the only entity in Mongolia that (through the Ministry of Finance and Economy or the Bank of Mongolia) has the expertise and resources to either hedge the risk, or bear the potential loss if the Togrog depreciates relative to the other currencies.

Preconditions

The Government of Mongolia must be in agreement with the concept that it is unrealistic to have EES assume the exchange rate risk.

Summary Action Plan

Task	Responsibility	Time Frame
1. A letter is submitted to the Minister of Finance and Economy to request that the On-Lending Agreements for the KfW loans be rewritten with payment due in Mongolian Togrog (calculated using the exchange rate as of 31 December 2002)	EES Governing Board	01 January 2003
2. Revised On Lending agreements are issued for the KfW loans	Ministry of Finance and Economy	01 February 2003
3. World Bank Loan On Lending agreement issued specifying repayment from EES to the GOM in Tg (using the exchange rate of the day prior to issuance of the On Lending agreement)	Ministry of Finance and Economy	Upon completion of the project (2004)

Results Expected

1. Less risky environment for EES to operate in
2. Increased likelihood of EES being able to meet its debt service obligations

Sector Recommendation B

The ERA and MOFE must implement a Tariff and Subsidy approval process

Background of the Issue

The decision to grant a subsidy to certain isolated power systems has already been made by the Government of Mongolia. The issues to be addressed now are the manner in which the amount of subsidy is determined and how the subsidy is "Delivered". A specific tariff and subsidy approval process is necessary to prevent the gridlock and political problems that occurred in 2002. See Chapter 4 for more details.

Preconditions

The ERA and MOFE must have the determination to implement an improved process.

Summary Action Plan

Task	Responsibility	Time Frame
APPENDIX D CONTAINS A VERY DETAILED ACTION PLAN SPECIFYING THE TASKS REQUIRED OF EACH OF THE RESPONSIBLE PARTIES AND A TIME FRAME.	SEE APPENDIX D	SEE APPENDIX D

Results Expected

1. A more rational, organized approach to the complex tariff and subsidy process
2. More certainty on the part of Energy Sector entities as to their tariffs and subsidies
3. Better opportunity to have a more commercially oriented sector

Sector Recommendation C

ERA should issue a Ruling to require that all meters be owned by the Distribution Licensees by a given date

Background of the Issue

Accurate, secure meters are a key ingredient in keeping commercial losses under control. The tradition of the customers owning their meters should definitely be discontinued. In a commercial environment, the supplier must be assured that the device used to record sales and bill the customer is accurate and tamper proof. That objective cannot be accomplished if the customer owns the meter. The Energy Law of Mongolia states that the supplier should provide the meter, however, no action to accomplish this has been taken to date. Since the concept of meter ownership by the customer is so pervasive throughout Mongolia, any change should be initiated by the Energy Regulatory Authority (ERA)

Preconditions

No formal precondition since the Energy Law already provides for this. The cost to accomplish this, however, will have to be provided for in future tariffs.

Summary Action Plan

Task	Responsibility	Time Frame
1. ERA issues an order to Licensees to comply with the Energy Law and own all meters by 2007, specifying that all retail licensees file their individual plan by 30 June 2003 to comply with the order.	ERA	01 April 2003
2. Licensees File their plans with ERA	Licensees	30 June 2003
3. Licensees report their progress compared to the plan on a semiannual basis to ERA	Licensees	31 December 2003 and semiannually thereafter
4. ERA to assess the status of compliance and issue license sanctions for non-compliance	ERA	31 December 2007

Results Expected

1. Better control over losses
2. More accurate billing of customers
3. More commercial environment

Sector Recommendation D

The ERA should incorporate regulatory incentive mechanisms in the tariff system

Background of the Issue

Rate of Return (or Cost Plus) Regulation does not necessarily provide a licensee with incentives to reduce costs, improve service levels, or to implement new, innovative programs. Performance Based (or Incentive) Regulation aims to overcome this deficiency. If a pre determined performance measure has been met or exceeded, the Licensee is rewarded in the form of higher "Profits". If targets are not met, the Licensee is penalized, generally in financial terms (lower "Profits"). It is very important to remember that the Regulator should not be running the Licensees' businesses. The Regulator can provide the proper incentives, however, to allow innovative managers to benefit from cost effective and customer oriented improvements.

In the case of EES, possible incentive targets could include items such as:

- Improvement in the Fuel Rates
- Reduction of Station Use
- Reduction in technical and commercial losses

It has been recommended that EES develop proposals for one or more incentive mechanisms and make a proposal to ERA for implementation (see Company Recommendation G). The mechanisms should be developed by determining a reasonable base level for a particular measure (say fuel rates) using historical data and recent demonstrated levels. If the actual performance over a period of time (say one year) were better by at least a given amount, then the tariff would be increased to provide EES with additional income. If the Company does not achieve the base level, then it would be penalized.

Also see Company Recommendation G.

Preconditions

ERA agrees that Performance Based Regulation is more effective than the current system.

Summary Action Plan

Task	Responsibility	Time Frame
1. ERA notifies Licensees to propose incentive mechanisms to be utilized in 2004	ERA	01 May 2003
2. Licensees submit proposals to ERA	Licensees	15 August 2003
3. ERA conducts open hearings on the Licensee's proposals	ERA	15 September 2003

Sector Recommendation D The ERA should incorporate regulatory incentive mechanisms in the tariff system		
4. ERA issues an order specifying the incentive mechanism and the targets for each Licensee for the year 2004	ERA	01 November 2003
5. Licensees report on their individual progress in meeting the targets	Licensees	Quarterly
Results Expected 1. More effective form of regulation 2. Encourage innovation on the part of Licensees 3. Lower cost of electricity 4. Licensees have the opportunity to be rewarded for their good results		

Sector Recommendation E

The ERA should include an allowance for bad debt in the wholesale and retail tariffs to recognize that virtually no suppliers collect 100% of the amounts billed to customers.

Background of the Issue

Collection of accounts receivable is a problem throughout Mongolia; however, the ERA will not include an allowance for bad debts in the tariffs. It is recommended that EES and the other licensees lobby ERA and the Government of Mongolia to include an allowance for bad debt in the wholesale and retail tariffs to recognize that virtually no suppliers collect 100% of the amounts billed to customers.

In accordance with International Accounting Standards, bad debt expense should be recorded to recognize that 100% of the revenue recorded in a particular period will not be collected and also to prevent the Accounts Receivable balance from being overstated.

Preconditions

ERA must be willing to increase retail (and wholesale) tariffs in order to allow Licensees to recover the bad debt expense from customers.

Summary Action Plan

Task	Responsibility	Time Frame
1. Require each Licensee to provide the following information by 31 March 2003: a) Revenue recorded (billings) and collections by year for the prior 5 years b) An aging of its Accounts Receivable at 31 December 2003. c) Documentation of its collection policy and efforts made to collect outstanding Accounts Receivable. d) A proposal of the level of Bad Debt expense (as a percent of revenue) to be included in its tariff.	ERA	Request Issued 01 January 2003 Deadline for completion is 31 March 2003
2. Analyze the information provided by Licensees and provide a report summarizing the findings	ERA Staff	01 May 2003
3. Hold open hearings on the Issues	ERA	01 June 2003
4. Issue an order specifying the bad debt expense as a percent of revenue that will be included in tariffs for each licensee at the time the tariffs are adjusted	ERA	30 June 2003

Sector Recommendation E The ERA should include an allowance for bad debt in the wholesale and retail tariffs to recognize that virtually no suppliers collect 100% of the amounts billed to customers.		
5. Follow through and include the bad debt expense in tariffs.	ERA	During 2003, when tariffs are adjusted
Results Expected 1. More reasonable cost recovery for Licensees 2. Makes the bad debt situation more transparent.		

Sector Recommendation F

The Government of Mongolia should discontinue the practice of having a list of entities that it will not allow suppliers to disconnect. The Government should not use the energy sector to provide non-transparent subsidies to those entities.

Background of the Issue

The Government of Mongolia has a list of entities that it will not allow suppliers to disconnect. If the Government wants to foster a commercial business environment, it is recommended that this practice be discontinued. If the Government decides that it is in the public interest to subsidize certain entities, then it should do so with public (budget) funds. The Government should not use the energy sector to provide non-transparent subsidies to those entities.

NOTE: This recommendation is related to Sector Recommendation G

Preconditions

The Government of Mongolia must be willing to allow the Energy Sector entities to operate on a commercial basis, according to the Energy law.

Summary Action Plan (SAME AS SECTOR RECOMMENDATION G)

Task	Responsibility	Time Frame
1. Place the issue on the agenda for the next meeting of the Cabinet of Ministers	Minister of Infrastructure	Prior to 01 March 2003
2. Propose to the Cabinet of Ministers that any restrictions on disconnecting electricity and heat consumers be removed and the issue of electricity supply be decided on by ERA, as provided in the Electricity Law. Any subsidies the Government wants to give to customers should be made transparent and provided for in the Budget.	Minister of Infrastructure	Prior to 31 May 2003
3. A Decree is issued stating that no Ministries are to interfere in the disconnection process.	Cabinet of Ministers	By 30 June 2003

Results Expected

1. Improved payment discipline
2. Improved collection of Revenue
3. More commercially oriented Energy Sector

Sector Recommendation G

The Government of Mongolia should allow licensees to take more vigorous collection action with retail customers, including State Owned and Budget Entities

Background of the Issue

In addition to having a list of entities that it will not allow suppliers to disconnect, the Government of Mongolia and some of its Ministries often do not allow electricity and heat suppliers to disconnect State Owned Entities (Industrial and commercial consumers) and Budget Customers. In effect, the Electricity Suppliers are not allowed to exercise the rights they are granted in the Electricity Law. If the Government wants to foster a commercial business environment, it is recommended that this practice be discontinued. If the Government decides that it is in the public interest to subsidize certain entities, then it should do so with public (budget) funds. The Government should not use the energy sector to provide non-transparent subsidies to those entities.

NOTE: This recommendation is related to Sector Recommendation F

Preconditions

The Government of Mongolia must be willing to allow the Energy Sector entities to operate on a commercial basis, according to the Energy law.

SUMMARY ACTION PLAN (SAME AS SECTOR RECOMMENDATION F)

Task	Responsibility	Time Frame
1. Place the issue on the agenda for the next meeting of the Cabinet of Ministers	Minister of Infrastructure	Prior to 01 March 2003
2. Propose to the Cabinet of Ministers that any restrictions on disconnecting electricity and heat consumers be removed and the issue of electricity supply be decided on by ERA, as provided in the Electricity Law. Any subsidies the Government wants to give to customers should be made transparent and provided for in the Budget.	Minister of Infrastructure	Prior to 31 May 2003
3. A Decree is issued stating that no Ministries are to interfere in the disconnection process.	Cabinet of Ministers	By 30 June 2003

Results Expected

1. Improved payment discipline
2. Improved collection of Revenue
3. More commercially oriented Energy Sector

Sector Recommendation H

ERA should develop a "Lifeline" tariff and implement it for household electricity customers

Background of the Issue

Low-income customers present a challenge to electricity suppliers in all countries. Given the economic realities and the political issues involved with low-income customers, subsidies are a reality. Identifying customers in need is a difficult task as well as determining the amount of electrical usage to subsidize. An arbitrary amount is often used. A "Lifeline" tariff is probably the most efficient mechanism (although not necessarily the most effective – see the seminar materials for more details) to deliver a subsidy. It is recommended that ERA hold open hearings on this issue and develop and implement a lifeline tariff for all retail Licensees. The lifeline tariff details, however, may be different for the individual Licensees given the economic situation of their regions, and the composition of households (apartments vs. gers).

Preconditions

None

Summary Action Plan

Task	Responsibility	Time Frame
1. ERA issues a notice of a public hearing on the issue of lifeline tariffs requesting proposals. Licensees, the public, and interested parties are invited to participate	ERA	01 March 2003
2. ERA holds open hearings on the issue of lifeline tariffs.	ERA	15 April 2003
3. ERA staff evaluates the input of all parties and makes a recommendation.	ERA	15 May 2003
4. ERA issues an order concerning lifeline tariffs to be implemented for each retail licensee at the time of the next tariff adjustment	ERA	15 June 2003
5. Tariff orders in the future include a lifeline tariff for retail electric customers	ERA	Ongoing

Results Expected

1. Less political pressure to keep tariffs low for all households in order to protect the poor.
2. Licensees and ERA can show sensitivity to the economic situation of customers
3. Possible improvement in collections

Sector Recommendation I

If the opportunity arises for the Government of Mongolia to modify the Law on Corporations, it is recommended that the Executive Director of the Company should be a member of the Governing Board.

Background of the Issue

The Governing Board (Board of Directors) presently consists only of representatives of the 3 Ministries that are the shareholders of the company. It, therefore, consists of representatives from the State Property Committee, Ministry of Finance and Economy, and Ministry of Infrastructure. None of the representatives have any day-to-day knowledge of the company operations. In the majority of Western companies, the Chief Executive Officer of the company is also a member (often the Chairman) of the Board of Directors. In the case of Mongolia, it is recommended that the Executive Director be a member of the Governing Board. This will allow more detailed input on company operations, thereby improving the quality of decisions of the Governing Board.

Preconditions

The 3 shareholding Ministries must agree on such a change.

Summary Action Plan

Task	Responsibility	Time Frame
1. Discuss the issue among the current members of the Governing Board.	Governing Board	Prior to 31 March 2003
2. Recommend amendments to the Law on Corporations, if required, to allow the structure change of members on the Board of Directors. (According to Article 75.4 of the Company Law of Mongolia non-shareholders can be members of the Governing Board).	State Property Committee	30 June 2003
3. Submit amendments to the Ikh Hural	State Property Committee	30 June 2003

Results Expected

1. More operational input to decisions of the Governing Board.
2. Improved decision making

Sector Recommendation J

The Ministry of Infrastructure should revise the decree requiring licensees to procure materials through the EA. The licensees should be given the option of procuring the items themselves.

Background of the Issue

EES has a staff responsible for procurement of spare parts and consumable materials. However, there is duplication due to a decree from the Minister of Infrastructure that the energy sector entities procure certain spare parts and consumables through the Energy Authority (EA). In the case of mazut, an imported commodity with a price fluctuating based on the world market price of oil; such a directive may be necessary. Also, to the extent that significant volume discounts are available, centralized procurement of certain spare parts and consumables may be justified. However, that does not occur with many spare parts and consumable materials. Discussion with the Procurement staff of EES and other licensees indicates that they feel that they can procure many items at a lower cost by purchasing direct rather than relying on the EA. In addition, they save the service fee charged by the EA.

It is recommended that the Ministry of Infrastructure revise the decree requiring licensees to procure materials through the EA. The licensees should be given the option of procuring the items themselves. Of course, if the licensee feels that it receives a lower price by having EA do the procurement, then it may do so.

Preconditions

The Ministry of Infrastructure must be willing to allow the energy sector entities to operate in a commercial manner.

Summary Action Plan

Task	Responsibility	Time Frame
1. The Minister of Infrastructure revises the prior Decree, making the procurement of spare parts and consumables through the Energy Authority an OPTION of the energy sector licensees, rather than a requirement.	Minister of Infrastructure	31 January 2003

Results Expected

1. More cost effective procurement decisions
2. Reduced operation and maintenance cost of Licensees.
3. Lower electricity and heat tariffs

14. MOVING FORWARD

14.1 PRIORITIZING THE RECOMMENDATIONS

The author of this report feels that all recommendations detailed in Chapter 13 are important for the EES Management Team and the Government of Mongolia to pursue over time. The resources of the Company, however, are limited in terms of money and management time. Government resources are also limited. In addition, unless Key Government Decision Makers embrace the Sector Recommendations, they will never be adopted.

For that reason, the Author has utilized his judgment to assign priorities to each of the recommendations in terms of the overall importance of the recommendation and the urgency of the recommendation.

14.2 COMPANY RECOMMENDATIONS

Exhibit 14.1 displays the priorities related to company recommendations. To provide insight to the assignment of priorities, for example, the author feels that the effective use of the funds for the International Loan Projects is so important to the long-range success of EES that a high priority was assigned to recommendations concerning that project. On the other hand, the recommendation to seize opportunities to reduce the number of employees has less urgency since the opportunities will primary arise after the Rehabilitation projects are completed and new operational practices are initiated.

Exhibit 14.1 Prioritization of Company Recommendations

	RECOMMENDATION	Importance	Urgency
A	Continue to improve accounting and reporting and move toward IAS compliance over the next few years (Chapter 3)	Medium	Medium
B	Engineers and finance specialists should perform a financial analysis on future projects prior to presenting them to management for approval (Chapter 3)	High	High
C	Revise the Cost Accounting Processes to be able to produce reports of estimated costs by line of business (Chapter 3)	Medium	Medium
D	Establish improvement targets for Key Performance Measures in the energy generation, distribution, and billing and collection processes and report on progress monthly (Chapters 5, 6, and 10)	High	High
E	The Management team must take advantage of the KfW and World Bank loan proceeds in the most optimal manner from an operational and financial perspective to realize improvements on the Key Performance Measures (Chapters 5 and 6)	High	High
F	Once the power station and distribution rehabilitation work is completed, sufficient resources must be devoted to periodic maintenance to prevent a recurrence of the situation in the 1990s (Chapters 5, 6, and 7)	High	Low
G	Become more proactive in the regulatory process. For example, develop and propose Incentive Mechanisms to ERA (Chapters 5 and 9)	Medium	Medium
H	Devote sufficient time and resources to the tariff process in order to present its position in a detailed, transparent, understandable manner to have a successful outcome (Chapter 9)	Medium	Medium
I	Continue to revise and support the IT/MIS Strategy (Chapter 11)	Medium	Medium
J	Expand the LAN network and connect the Distribution Office into the network (Chapter 11)	Medium	Medium
K	Develop a more modern Payroll and Personnel System (Chapter 11)	Medium	Medium
L	Develop a System to forecast and monitor the Company's cash position (Chapter 11)	High	High
M	Take every opportunity to manage employee levels (a factor over which management has a significant level of control) based on operating and financial criteria. This may result in reductions in some areas and increases in others (Chapter 12)	Medium	Low

14.3 TECHNICAL ASSISTANCE TO FACILITATE PROGRESS

The 4 recommendations that indicate both high importance and urgency (B, D, E, and L) should obviously be the ones to focus on immediately.

Recommendations B and E

These Recommendations deal with financial analysis and its use in effectively utilizing the International Loan proceeds. The amount of funds devoted to these projects is significant and have the potential of improving the technical and operating characteristics of the power station and distribution systems, therefore requiring immediate action. Also, since the Company is responsible for repaying the loans, it must utilize the funds effectively in order to be a commercial enterprise.

Technical assistance in the near term can focus on:

1. Assistance to EES Management to establish the "Financial Analysis Team"
2. Building capacity with the team in financial analysis techniques by reviewing the previously developed financial analysis seminar materials with them
3. Assistance in drafting the decree of the Executive Director
4. Assistance, on an as needed basis to review actual work packages and provide capacity building and direction on methods of analysis

Recommendation D

It is important for the management team to focus on Key Performance Measures and develop objectives for the future, considering the rehabilitation work in progress and anticipated.

Technical assistance in the near term can focus on:

1. Advising the Planning Manager and his team on meaningful measures and the importance of establishing targets that are reasonable and attainable.

Recommendation L

Having adequate cash is very important to any commercial business. Planning is required to ensure that the Company can meet its obligations when due.

Technical assistance in the near term can focus on:

1. Advising the IT Manager as she establishes the system
2. Capacity building with the Finance Manager on cash flow forecasting techniques

Although not rated as highly as the 4 items above, there are other Company recommendations on which progress can begin in the near term. Specifically, they are Recommendation A concerning the movement toward compliance with International Accounting Standards (IAS), and Recommendation H concerning the regulatory aspects of the business environment.

Recommendation A

As discussed in Chapter 3, it is important to move closer to IAS compliance. Full IAS compliance, which includes a formal audit, is very costly and not recommended in the near term. The financial statements of EES would be significantly enhanced, however, with some limited, straightforward disclosures. As shown in the Summary Action Plan for Recommendation A, footnote disclosures should be developed for publication with the Year 2002 financial statements (Task 1). Also, effective with Year 2003 reporting, accounting for maintenance costs (task 3) and the Phase 2 refurbishment costs and associated loan liability) (Task 4) should be improved.

Technical assistance in the near term can focus on:

1. Capacity building with the finance staff on IAS disclosure.
2. Providing assistance to the finance staff to draft the footnote disclosures for the Year 2002 financial statements.
3. Educating the Finance Staff on accounting for maintenance costs, Construction Work in Progress, and loan liabilities.

Recommendation H

As discussed in Chapter 9, in the new environment the tariff process is a very important one. Also, there is limited experience with this process so it is an area to focus on.

Technical assistance in the near term can focus on:

1. Advising the newly appointed Tariff Specialist to build capacity and to define his role and work with him and the staff of the ERA to determine the information needs and supporting detail to have more efficient and effective tariff proceedings.

14.4 SECTOR RECOMMENDATIONS

Exhibit 11.2 displays the priorities related to sector recommendations. To provide insight to the assignment of priorities, for example, the author feels that the establishment and implementation of a Tariff and Subsidy approval process is very critical to EES and some other sector entities to be able to operate on a commercial basis. On the other hand, the recommendation to modify the Law on Corporations to allow the Executive Director to be a member of the Governing Board has less urgency, although it would allow for more efficient communications with the Board and improved decision-making.

Exhibit 14.2 Prioritization of Sector Recommendations

	RECOMMENDATION	Importance	Urgency
A	The Government of Mongolia should retain the exchange rate risk associated with international loans (Chapter 3)	Medium	Medium
B	The ERA and MOFE must implement a Tariff and Subsidy approval process (Chapter 4)	High	High
C	ERA should develop a plan to have all meters owned by the Distribution Licensees by a given date (Chapter 6)	High	High
D	The ERA should incorporate regulatory incentive mechanisms in the tariff system (Chapter 9)	Medium	Medium
E	The ERA should include an allowance for bad debt in the wholesale and retail tariffs to recognize that virtually no suppliers collect 100% of the amounts billed to customers (Chapter 10)	Medium	Medium
F	The Government of Mongolia should discontinue the practice of having a list of entities that it will not allow suppliers to disconnect. The Government should not use the energy sector to provide non-transparent subsidies to those entities (Chapter 10)	High	High
G	The Government of Mongolia should allow licensees to take more vigorous collection action with retail customers, including State Owned and Budget Entities (Chapter 10)	High	High
H	ERA should develop a “Lifeline” tariff and implement it for household electricity customers (Chapter 10)	High	High
I	If the opportunity arises for the Government of Mongolia to modify the Law on Corporations, it is recommended that the Executive Director of the Company should be a member of the Governing Board (Chapter 12)	Medium	Low
J	The Ministry of Infrastructure should revise the decree requiring licensees to procure materials through the EA. The licensees should be given the option of procuring the items themselves (Chapter 12)	Medium	Medium

14.5 SUPPORT TO THE GOM IN IMPLEMENTATION

The 5 recommendations that indicate both high importance and urgency (B, C, F, G, and H) should obviously be the ones to focus on immediately.

Recommendation B

The establishment of a tariff and subsidy approval process is very important in order for EES and certain other energy sector entities to operate as commercial enterprises. A detailed process has been recommended and involves ERA, MOFE, and the energy sector entities.

Technical assistance in the near term can focus on:

1. Being available to advise the participants as they go through the process
2. Serving as a facilitator, on an as needed basis, to achieve agreement between the parties.

Recommendation C

It is critical that the meters be owned and under the control of the Distribution Companies, as called for in the Energy Law. The process for the change must be established soon since the implementation will take several years.

Technical assistance in the near term can focus on:

1. Advising the ERA on the regulatory order.
2. Advising Licensees, on an as needed basis, in establishing their plans.

Recommendations F and G

The Law on Energy is quite clear on the issue of suppliers being able to take collection action with all classes of customers, up to and including disconnection for non-payment. Two factors, however, are preventing suppliers from exercising their rights under the law. The first is the list of customers that are not allowed to be disconnected and the second is the reluctance of the suppliers to disconnect other customers for fear of political reprisal from the Government. The main objective here is to have the GOM allow suppliers to exercise their rights under the law. If the GOM feels that certain customers, or groups of customers, should be subsidized then the subsidy should come from public funds, not the Energy Sector.

Technical assistance in the near term can focus on:

1. Providing support as required by the Ministry of Infrastructure or other Ministries to communicate the importance of the issue. This could include education on subsidy mechanisms and the proper delivery of subsidies determined to be necessary.

2. Assistance in drafting a decree stating that no ministries are to interfere with the disconnection process allowed by law

Recommendation H

The establishment of a lifeline tariff is very important given the economic and political realities of the country.

Technical assistance in the near term can focus on:

1. Continuing the capacity building with the ERA staff on development of lifeline tariffs

2. Advising Licensees who request assistance on this issue.